NOVEMBER, 1890.

FRUIT-GROWING in the Northern States has received a serious check the present year. Never in the history of the country has the failure of tree fruits been so general and so complete. Some portions of the neighboring Province of Ontario have escaped in part the disasters that have visited our orchards, and from that source our markets are now receiving a partial supply. The cities of the west are getting a supply from Missouri, Kansas and Arkansas, which States appear to be exempt from the misfortune otherwise so general among orchardists. Arkansas is rapidly developing as a fruit State. We had the privilege in the earlier part of October of examining specimens of eighteen varieties of apples raised in the northwestern corner of Arkansas, and found them relatively large, smooth, sound, high colored and beautiful. From their appearance we doubt if any of these varieties can be kept later than January at the longest, and some of them were already ripe or nearly so, the names of which are the following: Mammoth Pippin, Lady Beauty, Hifell Seedling, Ozark, Pennsylvania Red Streak and Northern Spy; the last, perhaps, being the most advanced. The variety called Lady Beauty was apparently in form, color and all other points, excepting size, the well known Lady apple, but the specimens were three times the size of the Lady as usually grown. The later keeping varieties were the Rome Beauty, Winesap, Etris, Grimes' Golden, Arkansas Black, Limber Twig, Brightwater, Lawver, Ben Davis, Crawford Pippin and Kentucky Streak. Several of these varieties are of Arkansas origin.

But however well adapted these southwestern States may be to the production of fine apples they cannot supply the place of our northern orchards. For fall and early winter they may, and doubtless will, be able to supply a large part of the demand of the western cities, but the orchards of Michigan, New York and New England must of necessity be the reliance of the country for apples for late winter and spring, and from these sources also, together with Ontario, Quebec and Nova Scotia, must Great Britain continue to receive its greatest supply.

The crop of fruit the present season in the region noticed has had the effect to set in operation there many evaporators, and if the apple crop is more sure in those States a permanent new industry will thereby be developed. It may be a proper inquiry to make, whether our northern orchards will be losers on this account, or whether the demand will henceforth be equal to the whole output of both northern and western orchards. But the questions most important with us at this time are the condition of our or-

chards and the treatment they now need. In passing, it is only necessary to say in reference to the loss of a crop this year, that it was occasioned by weather conditions, and as a guarantee for safety in the future in this respect we can only point to the records of the past, and show that, as a rule, the conditions are favorable, and that if the orchardist does his part properly, nature will, in the main, be kind to us, and complement our efforts.

The incessant and profuse rains of springtime had the effect to promote the development and growth of many forms of fungi, from which our plants and trees are usually exempt. Even some of the hardiest of our native trees were the hosts of rare parasitic fungi, among which in this region we noticed particularly the sugar maples and the black ash. The foliage of the horse chestnut was also very seriously affected; the currant, the gooseberry and the vine foliage were also more or less the prey of this low order of parasitic vegetation. Observations made at Cornell University during the summer, by Professors BAILEY and DUDLEY, and made the subject of a bulletin, issued in August last, reveal, to some extent, the nature of the unhealthy affection that has prevailed this season in our apple orchards. In the report the writer says that "it is an almost universal opinion among growers that the weather is responsible for the general failure, particularly in the case of apples, where failure is the most complete and disastrous, and which were just passing out of bloom when a prolonged storm, of unusual severity and accompanied by lightning, passed over the country. It has long been supposed that cold and heavy rain at blooming time will prevent fertilization of the flowers, and the idea appears to be universally accepted. Yet I know of no reason for thinking it generally true, or at least of sufficient moment to account for the failure of a crop.

"In most cases the apples had set and were about the size of small peas when they began to die. They withered, turned brown and fell. The date of attack varied somewhat in varieties which bloom at different times. The greenings died before the late flowering sorts, but all were probably attacked at about the same period of growth. At the same time, the young leaves began to look unhealthy, and they rapidly assumed a blighted appearance. Most growers assert that those trees which bloomed most profusely were most attacked by the leaf blight. Three or four years ago a similar falling of flowers and blighting of foliage occurred, at least in some parts of Orleans county. In that case, however, the attack is reported to have been a little earlier, and the flower clusters often fell off entire. The meteorological conditions were similar in both years.

"All these facts show that there is an intimate connection between the death of the flowers or young fruit and the blighting of the leaves. The blight is caused by the apple-scab fungus. Whether the flowers or young fruits were actually attacked by the fungus in this case, or whether they fell because of the impaired vitality of the injured trees, I am unable to say, but it is probable that their death is due in large part, directly or indirectly, to the fungus. * * * * *

"This apple-scab fungus (Fusicladium dendriticum), which is so destructive to foliage, is the one which causes the scab upon the fruit itself. It is nearly always present to a greater or less extent upon both leaves and fruit, but it is rarely so destructive to foliage as this year. It has increased rapidly in New York of late years, and last year the apples were unusually scabby. The wet spring afforded it just the conditions for rapid growth."

The method of preventing and destroying this fungus cannot here be given in detail, but we refer our readers to the article on fruit culture which appeared in the July number of this MAGAZINE, pages 201 to 204, and those who can procure it to the August bulletin, 1890, Horticultural Division, of the Agricultural Experiment Station, at Cornell University.

There can be no doubt that the trees of our apple orchards have been in a measure enfeebled by the disease they have borne, and all practical measures should be resorted to to sustain them, especially should the older orchards have such attention, and among these measures may be mentioned shallow plowing this fall, and the application of manure to soak in during the winter. Careful and judicious pruning should also be practiced. In early spring everything should be in readiness to spray for the destruction of the fungus and also for codlin moth.

WEEPING TREES.

In a recent visit to Boston I was very much interested in observing the various kinds of weeping trees to be seen in that vicinity. Many that are not at all common, yet quite hardy withal, are to be seen planted in permanent locations and

Weeping White Ash—Boston Garden.

growing thriftily. On the ordinary routes of travel, especially in the Middle States, one sees but four or five kinds, and these do not give one a very high ideal in weeping trees. The Babylonian, the Kilmarnock and Wisconsin weeping willows, the weeping mountain ash, and the cut-leaved weeping birch make up the assortment. The first mentioned is a very old variety, always figuring in English churchyard views, but for some reason does not thrive in America, and seldom reaches a mature age, when it becomes the most magnificent of picturesque trees. The finest specimen I have ever seen stands close to the lake, near the bridge, in Boston Garden. It is nearly or quite three feet in diameter, with a stem of three feet where it branches and spreads its magnificent drooping spray over a circle of seventy-five or eighty feet. Its height is about fifty feet. A drizzling rain prevented my sketching it, but I hope some enterprising horticultural journal will have it photographed and hand it down to posterity as the most perfect weeping willow ever grown—the king of willows, in fact.

Weeping Japan Sophora.
Boston Garden.
Height 5 feet; breadth 5 ft.

The Kilmarnock willow, grafted on the black willow has been sold by thousands of agents for many years, yet it is rare to find specimens more than ten years old, and not many of half that age. It does not seem healthy or hardy, as the stock is not congenial, so it has failed to be the most common tree in every village, which it surely would have been had all lived that have been sold.

The Wisconsin weeping willow is pretty, and though almost too regular in

Weeping Japan Sophora—Boston Garden.
Height 6½ feet; breadth 6 feet.

shape has still a distinctive character that will permit of occasional use. I have never seen any specimens of mature age, so I cannot say what its maturity brings forth, either in the way of beauty or oddity.

The cut-leaved weeping birch, owing to its hardiness and ability to withstand hard usage, has become a common ornamental tree, but often fails from uncongenial surroundings and improper trimmings to take that place in the landscape that it is capable of. To do its very best it should be permitted to branch near the ground, have abundance of room and a good background. The other tree in the above list is a monstrosity.

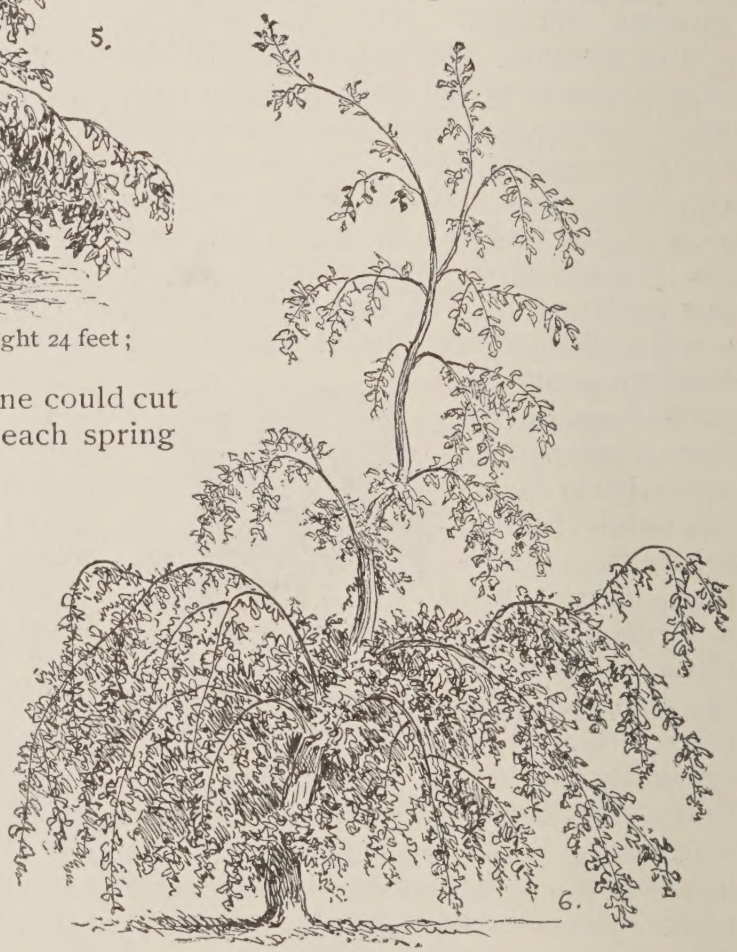
Stem of Weeping Japanese Sophora, in Boston Garden.

I have never yet seen a weeping mountain ash that I would give ground room if land was worth more than fifteen cents per acre. The tree, with its excess of branches protruding here and there, reminds one of a shrunken, dilapidated umbrella, or a gaunt, bony womau in a low-necked dress. Like the Irishman's house; it has an excellent frame, but is poorly sided up. But the real ash, a

weeping white ash, as seen in Boston Garden, is much handsomer, in my opinion. The proportion of siding to frame-work is much better, and the foliage is more vigorous and beautiful. Figure 1 is a sketch of this tree, which stands near the northern line of the Garden, not far from the wistaria bower.

Weeping Beech in Boston Garden. Height 24 feet; breadth 12 feet.

In the vicinity of this tree are several specimens of the weeping Japan Sophora. These are all small, and from the curious, tortuous and crooked stems, I judge are grafted low down, or else grown from cuttings of the weeping tree without grafting on the upright variety. A weeping sophora in the Hunnewell grounds, at Wellesley, is grafted about eight feet high on the upright sophora, and shows none of this peculiarity of stem. While looking at this tree, in company with several gentlemen, Mr. WILLIAM FALCONER remarked that "one could cut more dead wood from a sophora each spring than from any tree he knew of, yet when it leaved out the gaps were all closed, and the tree gave little evidence of the pruning."



Weeping Beech in Forest Hills Cemetery. 16 feet in breadth.

Figure 2 represents one of these singular yet pretty little trees, about five feet in height and breadth.

Figure 3 represents another one, close by, somewhat larger and less willow-like in form. This is six and one-half feet high, and eight feet in breadth.

Figure 4 shows the stem of another in the same Garden. The stems, it will be observed, are thick in proportion to the size of tree. The foliage of the sophora resembles the locust, but it is thicker in texture and more abundant.

Figure 5 is a weeping beech, near the center of Boston Garden, about twelve feet in breadth and twenty-four feet high.

Figure 6 is a handsomer one in Forest Hills Cemetery. This is about sixteen feet in diameter, and perhaps twenty-two feet high. I saw several of this variety, but all have the same characteristics—a bushy, broad development for six or eight feet

nearest the ground, and then a long and more or less naked growth stretching up, like the neck of a giraffe. Some are more pronounced in this respect than even figure 5. This beech is one of the

European Weeping Birch in Forest Hills Cemetery.

trees which improve with age, and there are some grand and wonderful trees in existence, which, as yet, I have only seen in pictures.

Figure 7 is one ot a pair of European weeping birches, standing near each other, just east of the entrance to Forest Hills Cemetery. The frame-work is abundant and its drapery scanty in the extreme, but the extreme slenderness of the branches give an airy grace and

Weeping Dutch Elm in Boston Garden.

beauty to the trees that does not pertain tothe cultivated variety, and which is very beautiful. The limbs have a habit of bending suddenly at a rather acute angle, and in unexpected points in the outline, giving it a unique and distinctive character. These trees have great advantage in location, as a nearly perpendicular slope of grass rises right back of them, furnishing an excellent background. The specimen illustrated is about sixteen feet high and the same in breadth.

Figure 8 is a weeping Dutch elm, not far from the Providence depot, near the eastern side of Boston Garden. It is grafted on an American elm about nine feet high, and its rank, drooping foliage give it a marked individuality aside from its regular form. There are several weeping elms in Forest Hills, of, I suppose, the Camperdown variety. They are grafted on the upright variety, and their greatest failing is too much regularity of outline, like the Kilmarnock willow. They have, however, magnificent foliage, and the size of the leaves was marvelous, some measuring six inches in breadth by eight inches in length.

Weeping Dogwood—Cornus floridus pendula.

The weeping tree that took my fancy most of all, however, was a weeping dogwood (Cornus floridus pendula) in Forest Hills. It is represented very accurately in figure 9. On the upper outline the new growth starts bravely upright, as if emulating the parent species, but it grows too fast and finally succumbs to a heavy rain, and bows never to look up again, save by proxy in some sprouting bud. These aspiring and thrifty new sprouts give a piquancy of character to the tree, not prominent in any other weeping tree I have seen, excepting in the weeping white ash, figure 1, which now and then throws a strong shoot directly up and sustains it in that position for quite a time. The weeping dogwood has the same large blossoms and scarlet berries of the upright sort, and being easily transplanted it should, when its merits and beauty become generally known, become immensely popular.

Figures 10 and 11 represent two weeping spruces (Abies pendula inverta) growing close together on the FRANCIS B. HAYES estate, in Lexington, Mass. Figure 11 is about five feet high, and all the growth is inverted or trailing, being grafted about four and one-half feet high on the common upright spruce. I suppose figure 10 was also grafted at about

Weeping Spruce.

the same height, but throwing out each year an aspiring leader, with more ambition than strength, has managed to acquire a height of about ten teet, although the bulk of its growth is in a fountain-like form around the base. I have seen trees of this variety elsewhere, and figure 10 is the characteristic form. It is a kind of combination of exaggerated Grecian bend and bustle. Another tree of this variety, in the same grounds, strongly resembles a thin, bent over old lady in voluminous skirts hanging over an enormous bustle.

There is a new weeping tree that I have not seen, except in catalogues, that bids fair to become popular, and that is Teas' weeping mulberry. Its worst fault will be that of the Kilmarnock willow, too much formality of outline, but its beauty will compensate for this in a measure. The place of weeping trees is not easy to fix by general rules. They find a congenial place in that most difficult of all gardening—the picturesque—and their position must depend upon the kind and trees in proximity. In large lawns with borders of grown up trees, weeping trees can be planted at projecting points with excellent effect, and there are places where two or more may be planted near together, always avoiding glaring differences of habit and outline. In small grounds of a quarter of an acre or less one is enough, and if the residents of a village street would each buy a different kind the effect would be better than to have every one plant the same, as is now done with the cut-leaved birch and willows. In a large cemetery of irregular surface, like Forest Hills it is not difficult to find suitable positions for a great many weeping trees, planting the larger, picturesque kinds away from the drives in a position where their outline may have a suitable background, while the smaller and more formal varieties can be planted at the intersection of drives and walks.

Since seeing, sketching and admiring the trees noticed in this paper, I have looked over the catalogues, and find the pendulous trees priced at from seventy-five cents to three dollars each. As there can never be a general demand for this class of trees, and all, or nearly all, must be grafted, this price is not excessive.

Weeping Spruce.

In conclusion, I wish to suggest to the planters that they learn more about the rare trees—weeping or otherwise—and instead of planting a wilderness of common trees, used by everybody, plant a greater variety, and let them be of the choicest to be procured within the means at command. There is a great number of beautiful and hardy trees that, as yet, are hardly known by the public, and which can seldom be seen, except in rare collections.

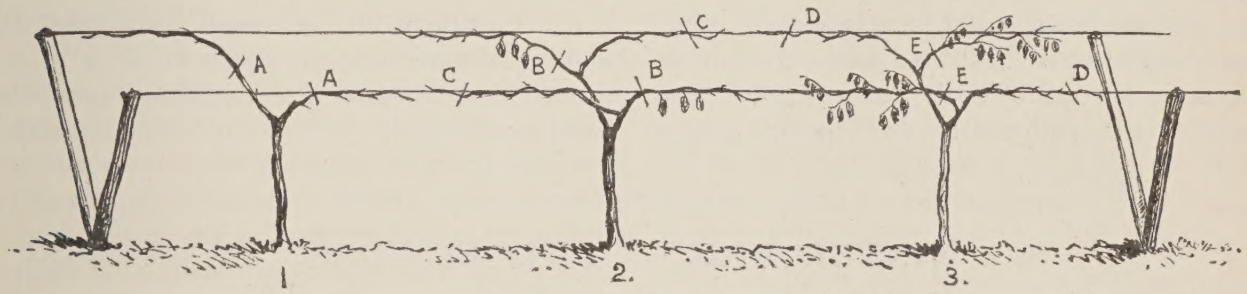
L. B. PIERCE, *Summit Co., Ohio.*

TRAINING AMERICAN GRAPE VINES.

MUNSON'S ALTERNATE RENEWAL SYSTEM.

It is well demonstrated that American vines generally give best results when the bearing wood is renewed alternately from one side of the vine to the other, and few long arms are preserved, rather than many short ones. This system is designed to accomplish this with the least expense as well as to form a shading canopy for the roots, body and fruit of the vine, and at the same time put everything in the most convenient shape and position for cultivation, pruning and harvesting.

Two No. 11 galvanized wires tightly stretched, both at same height (five or six feet as prefered) from ground, parallel, about two feet apart, supported by and stapled on top of a pair of durable posts set in same hole, flaring apart at top, twenty-four feet, or three vines from the next pair of posts, make the best trellis for American vines. The illustration shows the arrangement. For Delaware I prefer eight feet apart, for Concord, Niagara, &c., ten feet apart. for Herbemont, Empire State, Jacquez, &c., twelve feet, and the rows always eight feet apart. Cross pieces nailed to single posts would be often knocked off in cultivation.



MUNSON'S GRAPE TRELLIS.

The trellis should be set soon after the vineyard is planted, so that training may begin with the first year's growth, as at figure 1 in the illustration.

When the plant is set tie a string to its tip, (which should be a stub, the plant from the nursery having been cut back to four or five eyes,) and to the wires above. Up this string train the only one strong cane that is to be allowed to grow to make the permanent body of the vine, for two or three feet at least. When near the level of the wires pinch out the tip, and from the two upper buds shoots should be allowed to grow, one to be trained along one wire in one direction, the other along the other wire in the opposite direction, as seen in figure 1 of the illustration.

At the end of the first year, when the vine is fully at rest and leaves off, prune, as shown at *a*, *a*. The following spring allow each prong of the fork to push two arms only, occupying both wires in both directions, as seen in figure 2, and if strong the plant could be allowed to retain a few clusters on each of two prongs, as shown in figure 2, as the first partial crop.

The two year old vine should be pruned in the fall, as shown at *b*, *b*, *c*, *c*, cutting back the alternate arm which bore the few clusters to one or two eyes each, and the other two arms to four, six, eight or ten eyes, according to strength of plant, to throw out and easily carry to maturity bearing arms from each bud on the long arms, as shown in figure 3, which represents the first profitable crop at three years old.

This three year old should be pruned in full, as shown at *e*, *e*, *d*, *d*. This third year's process will be repeated annually, simply alternating the bearing arms, so as to maintain the "balance" of the vine, and to secure wood for bearing each successive year, that has not been produced by the sap passing through the wood which is bearing the crop of fruit.

ADVANTAGES OF THE SYSTEM.

1. Simplicity.
2. Economy of construction.
3. Economy of labor in pruning, gathering, cultivation, etc.
4. Maintenance of vigor of vines for a longer period than by other systems.
5. The natural habits of our vines are accommodated and the fruit distributed to the best advantage for the vine and the vine grower.

6. It presents less resistance to storms than vines trained one above another, and hence less liable to be blown out of place.

7. A perfect canopy of foliage is secured above the fruit, body and roots, preventing sun-scald.

8. The fruit hangs free from all chafing, all at near the same height, with best and equal exposure to light and air, and out of the reach of domestic fowls, pigs, rabbits, skunks, etc.

9. The work of pruning, tying, spraying for mildew, rot, etc., harvesting, and of passing from row to row is rendered easiest and most convenient possible.

10. A free passage of air beneath the vine is allowed, thus preventing dampness, and is almost an absolute preventive of black rot, as demonstrated in my vineyards this year, including some ten acres and hundreds of varieties of every specific blood. As the vines stand erect, free from contact with posts, there is no place for lodgment of winter spores about the bearing head of vine. When the wind blows there is a current of air under the vines which will catch the spores which develop most readily near the ground and in the shade, and carry them along to drop on the ground or go on through the vineyard without reaching the fruit above, protected by the foliage from currents.

11. When it is desired to cultivate both ways, the posts should rise to six or seven feet. Such a trellis would be admirable for supporting the Muscadine varieties, Vitis rotundifolia, such as Scuppernong, Thomas, etc.

12. This trellis permits an unobstructed view through the vineyard below the foliage, and gives a regular and beautiful aspect viewed above. It is easily and quickly constructed.

13. The system is easy to manage; even a novice can prune after a minute's showing, and the prunings can be easily removed. T. V. MUNSON.

WINTER FRUITS AND BERRIES.

The world widens in late autumn, and to look over faded fields and forests gives an impression of browns and grays spread out over it all; the bright color of fruits, etc., is scarcely or not at all perceptible at first. We must look closer, exploring copses and forests, and marshes, and all the hidden nooks. We shall find the list is quite a long one; grounds that contained them all would make quite a display. The holly family is represented here by the winter berry or black alder, Prinos verticillatus, a stout shrub four to ten feet high, in ponds and swamps Some patches never bear any berries, being all male plants, but all have a multitude of small white flowers, very attractive to bees. The female and perfect bushes are covered with round scarlet berries in winter, a clump being visible from a long distance at Christmas and later. Here is a swamp in the midst of woodland, and scarlet gleams begin to shine through the trees as you come near. As you issue from the thick underbrush a blaze of color is before you, the crowded bushes are covered with red leaves, shining, it may be, through snow wreaths or the rime from frozen fog. With evergreen foliage it would equal the holly of Europe —the berries are perhaps more numerous, but ferns, etc., can be used with them. They retain their tint indoors, but finally lose their forms by drying.

Another marsh loving species, a companion or rival to the winter berry, for which it may be mistaken a mile or so away, is the red dogwood, Cornus stolonifera, but its color comes, not from berries, but from bark. The glowing red of its polished shoots is visible miles away where it grows in quantity, and it is just as bright in early spring as ever, when all berries have faded or have fallen. It is six or eight feet high, with many stems from one root; the foliage, like all cornels, is neat and pretty, its cymes of white flowers become blue berries, but the fiery hue of its twigs is its chief merit. A thick hedge of it against a background of evergreen would be a blaze of colors from the fall of the leaves till they grow again. Both dogwood and winter berry are said to grow in ordinary garden soil if planted there.

The spice wood, Benzoin officinalis, though not exactly a decoration of the winter, is a good shrub too seldom planted. With an October sun shining down through its yellow leaves and lighting up

its fiery scarlet fruits, it is a thing of beauty; but they fall with the leaves. Its large dark foliage is smooth and handsome; it is aromatic in all its parts, the leaves especially, and its lemon yellow flowers tint the swamps in early spring before the leaves come out, thickly clothing the year-old wood, looking somewhat like a composite without rays. It will grow in dry ground if planted.

The wahoo, or burning bush, Euonymus americana, has a crop of large pink or rosy seed vessels which are shaped at the base like a blunt three-pointed star, and are hung by long slender pedicels. The shell soon opens at the bottom, showing a wrinkled orange-scarlet aril or envelope covering the three large white seeds. The shrub is tree-like in form, with square twigs, minute brown or black flowers and long narrow leaves.

The bitter-sweet vine, Celastrus scandens, a relative of the burning bush, is a strong growing vine, scrambling over trees and fences, with dark green and abundant foliage. Many trees a foot through carry a less number of leaves than this vine often does, though its stem may not be more than an inch or two thick. The clustered berries, which are bright yellow outwardly, are round and smooth at first, then the shell opens in three pieces and turns back, showing the scarlet aril-covered seeds, and now brighter than before, they light up the stumps, fences and the scraggy trees along the roadside for the most of the winter. Not many woody vines are better than the bitter-sweet; its growth is rapid and its shade is deep. The berries retain form and tint indoors when perfectly dry.

Looking across a valley in late autumn I was unable to tell what sort of copsewood it could be that, about a mile away on the opposite slope, looked so red, until I went to the place. Then I found a damp spot thick with a cornel, Cornus paniculata. The white berries had fallen and the crimson panicles that bore them gave the puzzling color, which does not belong to winter, however. It soon passes, and you must keep your distance. Then the soft rosy flush covering the rounded copses is pretty these dark, quiet days, looking something like a crimson smoke tree.

Another bright fruit is the high cranberry, Viburnum oxycoccus, a relative of the European snowball or guelder rose. It is a good shrub in foliage and flowers, and the berries are eatable, of a keen acid flavor. The black berries of the sloe, so-called, Viburnum prunifolium, are also conspicuous in winter. They are sweet, and with a little more pulp in proportion to their skins and seeds would be quite a successful fruit.

We must not forget the red hips of the sweet-brier rose, which are so highly polished that you can see yourself in them as you come near, and the evergreen habit of the bush for the first weeks of winter helps the effect.

The exotic barberry covers itself with the brightest red. Its fruit is eatable if one likes its keen sourness.

Here in the woods are knolls and mounds—formed of the earth that has fallen from the roots of great trees uptorn by prehistoric tempests—of all sizes and forms. The dry summits of many of them are covered with a thick mat of evergreen vines beautifully mingled with verdant ferns and mosses, the gray or green cups or the red caps of the Cladonia lichens, while even the stones are decorated — it is the partridge berry, squaw, or tea berry, Mitchella repens, with its scarlet berries. The last extremity of cold and mild sunny days, of bare and frostless earth, are all the same to this hardy plant. Its sweet and eatable fruits keep their form and tint until spring is nearly here, while the dark evergreen foliage enhances their effect. Each berry has borne two white tubular, fragrant flowers. Filled with down they came forth in midsummer under the heavy shade of forest foliage.

A companion of the partridge berry, having the same persistent foliage and fruit, is the wintergreen, or checkerberry, Gaultheria procumbens, growing mostly in the company of oak, pine or hemlock. It has an underground stem, and the new growth consists of apparently separate plants coming up at some distance from the old ones. Each little plant bears half a dozen leaves or so of great substance and high polish. They are apt to be red or brown in sunny places, with a few bell shaped white flowers and shining crimson berries. Nothing, in color and form, can excel a well grown wintergreen, with its bright foliage and fruits, which are delicious to eat. The time to pick them is

after the snow has gone but before growth has begun,—the first sunny days, when the ground begins to be firm under your feet and it is pleasant to lie on the beds of wintergreens in the sun. And another event is the coming of the new growth of foliage, in June, with its aroma and its spicy flavor. I am told that this plant does not grow in all the States, but life without young wintergreens must be rather dubious, it seems to me.

E. S. G., *Canaseraga, N. Y.*

HARDY PERENNIALS AND SHRUBS.

More and more each year do I value the hardy plants which require but little care after becoming established, and I am adding frequently choice things to my collection. The hardy bulbs, shrubs and perennials are of such great variety of form and color that an immense garden might be a continued joy without one annual in it. The department of bulbs alone would furnish unceasing bloom from the peeping forth of the crocus and snowdrop till hard frost. There are shrubs that bloom from April to October.

There are climbers that blossom from May until late autumn. How attractive are the varieties of honeysuckle, affording a perpetual delight. The clematis, also, early and late bloomers from the new growth and the old, and a few perpetuals. I much admire these climbers. Have had eight kinds for several years, perfectly hardy. I was pleased to see the clematis Beauty of Worcester come through last winter all right and grow rapidly. Last autumn the vines of clematis were not taken from the trellis, and I was a bit fearful of the result, but they never looked so well as the past summer. The roots every one perfected during winter.

What a rapid climber and thrifty grower is Clematis coccinea. It dies down every winter, but springs up from the root in May, increasing its stock with new shoots, and how it spreads itself out with its slender branches all over the trellis, and how bright and beautiful it is when laden with its curious coral-hued, bud-like flowers. Everybody admires it.

Another thing that shoots up rapidly with its annual top, is Desmodium penduliflorum, or Sweet Pea Shrub, which comes into bloom in August, and bears on its willowy branches thousands of pea-shaped flowers. The foliage, too, is very pretty.

What a pleasing variety is afforded from early spring till midsummer by the spiræas. The Bridal Wreath is one of the earliest, producing its double white flowers in May. Thunbergii, low growing, with yellowish-green foliage and small white flowers, also early in May. Van Houttei with its globes of white thickly set along its graceful, pendant branches, is first-class, and blooms in May and June. Trilobata, or St. Peter's Wreath, comes in June, as does also Ariaefolia, one of the rarest and best. So, also, is Callosa, with its flat corymbs of pink flowers. Aurea is golden. Salicifolia, white, in July. Palmata var. elegans, highly ornamental foliage, and flowers of creamy white with a shade of crimson in the center. Ulmaria with golden variegated foliage. These are only a few of the varieties well deserving a place in the garden.

There are the pyrethrums, quite a class, though many know only of the double white, so generally cultivated. Beauty of Lacken, velvety red. Captain Nares; bright crimson. Nemesis, rose tipped with crimson. Solfaterre, sulphur yellow. These are all double flowering and hardy. Uliginosum is a single blooming, autumn flowering variety, color white with yellow center. Roseum has fern-like foliage and single, pink or red flowers with yellow disc; early bloomer.

Hardy gaillardias are quite as pretty as the annual varieties and much more stately. A few of recent introduction I will specify. Attraction, flowers large and of a bright vermilion color, edged with a golden beard. Superba, a novelty of last year; deep crimson bordered with yellow. Perfection, dwarf, brilliant scarlet margined with lemon yellow. Cristata Templeana, orange, crimson and red shading into each other, but forming distinct rings of color, brown center. Flowers are two to three inches across, and are borne on stems nearly two feet high. This originated on the grounds of Mr.

TEMPLE, of Cambridge, and was named for him.

What a charming variety is afforded by the perennial phloxes. The low growing forms of spring are succeeded by the taller growing and larger heads of Phlox suffruticosa, while the brilliantly tinted varieties of P. decussata come yet later, so that one can have this attractive family in perpetual bloom. They come in delicate tints with a dark eye, or in brilliant hues of scarlet, crimson, fiery red and rich purple with eye of differing hue, while some are beautifully striped. Clumps of phlox make a grand show in the garden, and increase rapidly from the roots. There is one rarely beautiful variety I will especially describe, as it is said to be the finest phlox known. *Eclaireur*, of dwarf habit, "immense panicles in breadth almost equaling the height of the plant, enormous carmine flowers, center rosy salmon surrounded with a starry wreath of rosy white."

Of the large shrubs what is more attractive than the rhododendrons, with their shining, evergreen leaves, and each cluster of flowers a veritable bouquet. The Catawbiense hybrids are perfectly hardy here, in Maine. Pyrus Japonica, the most beautiful of the scarlet flowering shrubs, now known as Cydonia Japonica, and Pyrus arbutifolia, with white flowers and black fruit, are very desirable.

Last year, I added to my collection two golden leaved shrubs, Ligustrum Californicum aureum and Philadelphus aureus, or Golden Syringa. The former has leaves bordered with yellow, the latter has leaves golden yellow and penciled with different hues.

MRS. M. D. WELLCOME.

CULTURE OF PEANUTS.

While I believe peanut culture is not conducted to any great extent north of Virginia, yet it has been successfully attempted by amateurs, at least, for their own amusement and profit, as far north as our own State of Ohio. The soil is not unfavorable here in many localities for their culture, and although I believe a sandy soil to be the best adapted, I have grown fine ones this year on our clay hill. We bought the nuts (unroasted, of course,) and got them in the ground as early as we could, and had them shoving through in May, in spite of disasters resulting from the inroads of ground squirrels, or chipmunks, as they are more commonly called, who dug them up almost as fast as we planted the nuts. They grew rapidly when well started, and by stirring the ground frequently about them we were more than delighted to see their advancement. Then came the heated "dry term" of the past summer, so wide spread over the country, and we had much to contend with, our poor little peanut patch suffering from the long continued drought as well as the rest of the garden. Timely sprinkling saved it, however, and by daily attention brought it back to its early luxuriousness. At the time I write, in late August, great hillocks or green clumps of the plant cover the ground everywhere —a pretty sight—for the leaves and vines are as interesting as the culture. No blossoms are seen, however, or nuts, for they are all underground. It is a strange feature about this little nut called the "ground nut," that the nut will not form unless the blossom be covered with ground as soon as well opened. So as soon as the blossoms began to appear, early in June, we began to cover—a daily task, but one full of interest. The blossom itself is about half as large as a sweet pea blossom, much the same in shape, of a deep, intense yellow, very fragrant and growing singly, each upon its own fragile stem. It does not take long for the nut to form after the bloom is covered, and it would be a matter of surprise to see all the numberless white nuts in different sizes and stages of growth in the underground chambers of the loose mellow earth of our peanut patch. If the frost delay sufficiently long we will reap a splendid crop off this patch, not larger than a good sized room. Every American boy and girl knows how they taste when well roasted, but how many of them know how they look in process of growth? It is something for the ambitious boy or girl to try when next summer comes, and might, if well attended and conditions were favorable, turn out to be a source of profit as well as one of

intense pleasure to themselves. The trailing, pretty vine, with its lovely leaves, is pretty in itself and is capable of repaying all trouble or care expended upon it. We have heard of a new variety—a large sized nut of a different nature, that can be grown with less trouble—the nuts forming of themselves, like potatoes, in the ground, and without attention as to any covering of bloom, but we have not yet been able to see them or secure any

With the first frost the vines should be pulled up with the nuts on and hung up to dry, when the nuts can be gathered It is said that Norfolk, in Virginia, is one of the great markets for the trade in peanuts. Where they are raised in quantities, in the south, the nuts when gathered are put in a large revolving machine to be cleaned from the dirt and dust. H. K.

NEW ZEALAND FLAX.

The iris-leaved flax lily, Phormium tenax, or as it is more often called New Zealand flax, is a greenhouse plant belonging to the natural order Liliaceæ.

It is a native of New Zealand, whence

PHORMIUM TENAX.

it was introduced in 1788, and may be described as having stiff erect, sword shaped, dark green leaves with a narrow, reddish-brown margin, which makes it a highly ornamental foliaged plant.

The flowers, which, by the way, are seldom produced, are described as being of an orange color, borne on strong, alternately branched spikes, which grow from ten to twelve feet above the leaves.

The Phormium is a plant of rapid growth and is easily cultivated. When well grown it is suitable for the decoration of the lawn or mixed flower border during the summer, and the greenhouse or window garden at any season of the year. An excellent point in its favor is that it is perfectly free from all insect pests. To grow the Phormium to perfection as a pot plant it should be given a porous or soft baked pot, one proportionate to the size of the plant, and a compost consisting of two-thirds turfy loam and one-third well decayed manure. In potting be very careful and avoid mutilating or injuring the foliage of the plants. When grown as a summer decorative plant for the lawn or mixed border, the plants should be given a deep, well enriched soil, and as soon as hot dry weather sets in well mulched with coarse littery manure, and watered copiously at least once a week.

While the plants are in a state of growth liberal supplies of water, both overhead and at the roots should be given; but in the winter, or when the plants are in a state of rest, the supply of moisture may be considerably reduced. An average winter temperature of fifty degrees and a light situation is the most suitable for the plants.

The generic name is derived from *phormos*, a basket, in reference to the

use made of the leaves in its native country, where they are worked up into baskets, matting, etc. Propagation is effected by a careful division of the plant, and this operation is best performed as soon as the plants start into growth in the spring. Nice plants can also be procured at a moderate price of our principal florists, and with a liberal treatment fine specimens may soon be obtained.

CHAS. E. PARNELL, *Floral Park, N. Y.*

GENTIANS.

"Along this quiet wood-road, winding slow,
When free October ranged her sylvan way,
In matchless beauty, tender and serene,
The gentian reigned, an undisputed queen."

The many vague and unsatisfactory poetical allusions to this flower—the fringed gentian—are very tantalizing to one who has unsuccessfully sought it, and I remember that I used to think it only a fabulous flower, and that the presumptuous authors who pretended to be so familiar with it were very inconsiderate not to give more minutely the shape of leaves and petals, number and arrangement of stamens, etc., until reminded that the usual botanical jumble would not be very poetic or easily rhymed.

The gentian family is not well represented in our locality, and this paper is written with the hope of drawing information from those who are better posted than the writer in regard to it. A fringed gentian is quite a find in our woodlands, but it is so beautiful that frequent search is made for it. Beginning to bloom in the latter part of September, it is often found still brightly nodding among sere leaves and grasses after November frosts, so that "through all the spring and summer months this plant seems to store up sunshine and the dark blue of the sky, that it may unfold them in matchless beauty almost in the face of wintry winds." Its flowers are solitary, on long, slender branches and peduncles. The lobes of the calyx four-cleft and unequal, corolla a bell-shaped tube, its lobes wedge obovate and fringed, color a beautiful sky blue.

The closed gentians, pink and blue, are much more common than Gentiana crinita. They are usually found in damp, open woods or along the banks of streams, and are quite pretty.

G. lutea, or ochroleuca, as variously given by botanists, is of a yellowish cast and of no especial beauty, but it is quite medicinal in its properties, as, I believe, are all the gentians, and I ceased to wonder at their scarcity after seeing a root-digger stuff them into his basket.

L. GREENLEE.

FOREIGN NOTES.

NEW STRAINS OF PETUNIAS.

In making notes of a call at the seed nurseries of JAMES CARTER & Co., at Forest Hill, near London, England, the *Gardeners' Magazine* has this, among other things, to say about some new strains of petunias:

But more than all else the new strains of petunias afforded us the rare advantage of a new pleasure. Hitherto the continental green-edged petunias have been unpleasant, though promising things. Messrs. CARTER have carried the idea forward, and now we see established a most beautiful strain, the flowers of which have soft, rosy, crimson or purple centers, with broad margins of a delightful tone of green. The flowers being large and fantastically waved, the unique coloring compels admiration, and we have to confess that this is "something new under the sun." Another novelty in the way of petunias is the "clematis-flowered" group, one lot of which gives a capital imitation of the flowers of clematis Jackmanni set upon neat-habited petunia plants. The purple-blue color of these clematis-petunias is singularly pure and rich, and gives a quite new tone to a display of late summer flowers, whether in the open or under glass. The clematis group, however, present several equally acceptable colors, one in particular of the brightest rosy carmine being surprisingly fresh and pleasing.

PLANTING WATER MARGINS.

A writer in *The Garden* says: "Trees and bushes are indispensable embellishments to water. They are important for concealing its real extent, besides producing light and shade. In planting near water, however, we must not interrupt the best and most lengthened view of it, as seen from the house and the principal parts of the park; neither must we entirely shut out from view the whole of the ends or boundaries of the outward prominences, or some of those parts which project into the water. At the same time caution must be used not only to prevent the eye from catching the various bends of the outline of water from any one point of view, but also to afford variety in the grouping of the trees and shrubs; indeed, the whole planting must be so effected as to leave the extent of the water undetected, and even unimagined from any one position."

CLIMBING NIPHETOS.

When first I saw this rose I felt doubtful about its being quite distinct from the old form. However, after growing it beside the old favorite, I am quite satisfied that the two are quite distinct in habit of growth. There is little difference in the flowers, but the free, vigorous growth is a great recommendation to the new variety. We have plants which were worked in the spring and that now have three or four shoots each, some of them being fully twelve feet long. Grown in the same way as Maréchal Niel and ripened off in the autumn, it should make a valuable rose for early forcing.

F., in *The Garden*.

PASSIFLORA CONSTANCE ELIOTT.

The London *Garden* has published an interesting account, by W. NAPPER, of the origin of this fine white Passion Flower, together with an illustration which is here reproduced. Mr. N., it appears, discovered it in Devonshire in 1882, and brought it to the notice of the proprietors of the Exeter Nursery, LUCOMBE, PINCE & Co., who propagated it and sent it out. Quoting from his account, he says:

Since then thousands of specimens have changed hands, particularly in America, where I am told it is even better known and appreciated than it is in this country. It might also be interesting to record that it was named after a Mrs. ELIOTT, of Exeter. But often the name is wrongly spelt in the gardening papers — CONSTANCE ELLIOTT for CONSTANCE ELIOTT; and at Kew Gardens the fine specimen there was also incorrectly labeled. This is but a trifling error; still, such petty blunders sometimes lead into more serious complications. A man named FULLER is reputed to have raised it from a seed of the common blue Passion Flower. There is, however, some doubt on this point, and for my own part I do not believe that this person has any claim whatever to the honor, for I possess letters which were written to me in 1887, by a lady named Miss MORRIS,

of South Hill, Lustleigh, Devonshire, in which she says:

"The story of the white Passion Flower is as follows: In 1879 I lived at Ford Park, Newton Abbot, and in the garden found a stump with no appearance of life; being near the water-cock, I threw gallons of water on and around it, and about the first week in September I picked the lovely white bloom on what I had taken for an ordinary Passion Flower. The stump looked as if it had seen many summers, but neither I nor my friends ever saw a bloom like mine, which, till known in the market as Constance Eliott, always went by my name, and I gave my plants away. FULLER had nothing whatever to do with mine, or I with his. Mine was blooming in 1879, his in 1882."

PASSIFLORA CONSTANCE ELIOTT.

This lady's epistle shows how important it is to always satisfy ourselves that even a stump is worthless before destroying it. Many gems have no doubt been annihilated by thoughtless persons from time time, especially in old-fashioned gardens.

MESSRS. JACKMAN'S CLEMATIS.

These plants, we are happy to find, retain all their popularity, and, in their way, no plants are more deserving. Looking recently through the immense stock at Messrs. JACKMAN'S, at Woking, the cradle of the original, and the home of many of the later varieties, it was obvious that, in its way, the old C. Jackmanni had not yet been improved upon. It is difficult to see how it could be. Gipsy Queen is noticeable for its deep violet color; Mrs. Baron Veillard, a new kind, of French extraction, is a free bloomer, with reddish-lilac flowers, of a distinct shade of color; it blooms in the autumn. The best white is a variety known as Mrs. George Jackman, the flowers of which almost fulfil the florist's ideal, and are of pure white. It flowers twice—once in early summer, and again in autumn, presumably from the old wood in the first instance, and from the new season's shoots in the other. This is a very interesting circumstance in relation to the ancestry of the plants, as we have had occasion to remark before. For general purposes, C. Henryi remains the best white, and it is accordingly in large demand, though not so ideally perfect as the last named. C. lanuginosa candida is also a good white. Otto Frœbel, Lady Caroline Neville, Alexandra, Marie Van Houtte, and Duchess of Edinburgh are all sorts in large demand. Magnifica is remarkable for its flowers, which have a lilac ground, traversed in center by a bright red central band. It is a very fine bloomer, very hardy, and in garden phrase a good doer.

Gardeners' Chroniele.

ALPHONSE KARR.

The death of ALPHONSE KARR took place on the last day of September, in the eighty-third year of his age. In the pleasant hours we have spent with the writings of this agreeable and witty French author, who is most widely known by his particularly interesting book on horticultural subjects, entitled *Voyage autour de mon Jardin*, we had accepted the idea that

he was a *litterateur* purely,but in a notice of his decease, the *Gardeners' Chronicle* says that "he began life as a politician and a journalist. If he was not successful in the former capacity, he was eminently so in the latter. The second Empire practically, if not directly, muzzled him, and thenceforth he took to commercial horticulture near Nice, and distributed roses and violets rather than epigrams. He contributed occasionally to the horticultural press; but his contributions, as was natural, were more valuable for their literary flavor than for any practical teaching. He was of German extraction, but his wit and manner were French to the core. He was born in Paris, in 1808, published his *Voyage autour de mon Jardin* in 1845, retired to Nice after the revolution of 1848."

EFFECT OF WIND ON TREES.

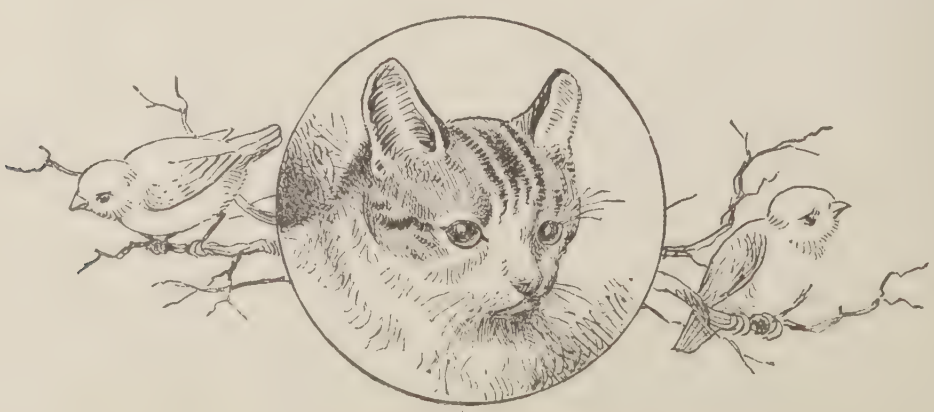
Trees which grow in exposed situations have their tops always leaning away in the opposite direction from the prevailing winds, and the casual observer concludes that the branches have been bent by the constant pressure of the wind and retained their position. Now, although such trees have the appearance exactly of trees bending under a gale, still it is not pressure in that way which has given them their shape. The fact is, they have grown away from the blast and not been bent by it after they grew. Examination of the branches and twigs will show this. We hardly realize the repressive effects of cold wind upon tree growth, which it partially or altogether arrests, according to its prevalence. Conifers show the effects of this more distinctly than other trees. Owing to the horizontal habit of growth of the branches they point directly in the teeth of the gale from whatever direction it comes, and cannot, like the oak, lean over and grow in the opposite direction, hence coniferous trees growing in exposed situations produce good long branches on their lee sides, while on the windy side the branches retain their rigid horizontal position, but make comparatively little growth which is simply suppressed. Example: I measured the branches of a Nordmann's spruce, growing in a position fully exposed to the north and south. One branch on the north side of the tree had fifteen annual nodes or growths, and was seven feet long, and its opposite had the same number of nodes, but was nearly two and one-half feet longer, all the lateral branches being proportionately long and well furnished.

The Garden.

THE BLUE GUM AND MALARIA.

Dr. J. Croumbie Brown, with his customary zeal, has compiled some particulars relating to the culture of the eucalyptus in Italy, and its effects in ameliorating the climate The results obtained are such as to warrant the culture on a large scale of the eucalyptus in the malarious parts of tropical Africa. From experiments made and calculations based on them it is shown that the leaves of these plants evaporate double or treble their weight of water, and even a much larger quantity. The Trappist monks who formerly could not sleep without risk of life in their monastery in the Pontine Marshes, but betook themselves every evening to a convent in Rome, can now remain at their monastery of Tre Fontanes, with little risk, and the peasantry who were formerly obliged to migrate to the mountains in summer now reside on the Campagna all the year round. This improvement has followed upon the extensive plantation by the monks of various species of eucalyptus.

Gardeners' Chronicle.



PLEASANT GOSSIP.

STRAY LEAVES.

Among the plants that I mean to give a place in my garden next season is the Passion Flower. Strange how rarely one sees this plant in cultivation, and yet all that it asks is a sunny place and a rich soil to astonish you with its agility as a climber, far surpassing many a common favorite in this respect, and at least equaling them in the grace and beauty of its foliage. It is well worth cultivation as a climber, even if it never bloomed, and who can describe the rare, strange beauty of its blossoms, or the delicate richness of their fragrance. Unfortunately, it will not bear the winters in this latitude.

Another new treasure to me is that sturdy little member of the great dianthus family, Dianthus Snowflake, with its pure white fringed blossoms equal to a white carnation, except its lack of fragrance it is indeed a treasure to those who wish plenty of handsome white flowers for cutting or for massing. It is of dwarf habit, a close, erect grower and very lavish with its blossoms, and as it bears moving well I shall try and see if I cannot have white flowers all winter from some fine specimens now in the bed.

I do not care particularly for a strong yellow flower of any sort, but there are plenty who do, and certainly nothing that I had this season in my tiny garden attracted more attention than my bed of calliopsis. They certainly have two very good traits to recommend them, nay, three; they bloom profusely, they don't crowd their neighbors, and they don't require "raising" after the seed is sown, if you will give them a drink occasionally they will "raise themselves.

Those who make bouquets for themselves or others, are often troubled for want of a suitable green to work in. The rose geranium is a general favorite, but young, strong growing plants potted or planted out in very rich soil should be kept in plenty, so that you can cut freely, and as soon as the plant gets old and woody and the leaves decrease in size and rankness, throw the plant away and get a fresh one. But geranium leaves are not suitable in all places, and something else must be had. The rank growing grasses are very serviceable though rarely used; but there is one that is worthy of a place in every garden, and that is the old-fashioned ribbon grass. How its familiar white and green carries me back to boyhood—to my old mother's garden, and the bouquets she used to make. It will grow anywhere, but will amply repay you for a rich soil and plenty of water.

Healthy rose leaves work in with excellent effect, their cool, glossy green making a fine background or border, while young shoots can be used to advantage mingled with the flowers. So some rampant growing bush, in an odd corner, may be well worth your while. In many cases nothing sets a flower off better than its own leaves, especially for the button-hole or corsage. Don't let art run away with nature, nor try to improve on the handiwork of Him who set the rose amid its own graceful foliage, the pansy in its bed of royal green and hid the daisy in the dew-gemmed grass.

It will soon be high time to lay out flower beds for next season and prepare the soil. Don't wait till spring and then half do it, but do it now, and take time to do it thoroughly and well. I never appreciated the value of ashes until I made a bed on the spot which some former tenant had used as an ash heap. Then the rich growth and coloring convinced me that ashes were not to be despised. The ash gives a vigorous growth and the plentiful mixture of half-burned coals add to the coloring; so I am now adding a liberal supply of ashes to all my beds. Here, on the rocky, winding shores of majestic old Lake Superior, all we have to make flower beds of is ashes, manure and sand. I nearly forgot to mention the sand, and if we need any thing further we add more sand. I should not fail to add that we rarely have much trouble in securing the latter ingredient.

Oh, for a few loads of the rich, black soil of the far away Illinois prairie, where I was born.

D. M. FARNSWORTH, *Marquette, Mich.*

CHRYSANTHEMUMS.

The following extract from a paper read by M. A. MANDA, before the Massachusetts Horticultural Society, contains some valuable information in regard to the raising of new varieties of Chrysanthemums, and the general requirements of the plants:

The aim of the raiser, now-a-days, is to procure large flowering varieties; the substance, color, stem and habit of the plant seem to be secondary considerations. It is especially noticeable that while hundreds upon hundreds of new Japanese varieties have been raised every year, only very few of the Chinese class have been added, while the pompons are discarded and rarely met with.

When hybridizing, the principal object should be to improve upon the vigor and color of any varieties more than the mere size, A first-class chrysanthemum should be of free growth, with stiff stems, the foliage clean and furnishing the stems up to the flower, while the flower itself should be of good substance, well formed and of a pleasing color. The colors, which are yet to be obtained, aside from the impossible blue, which I never expect to see, are a fine clear orange and clear bright red, which are wanted to brighten up our collections.

A great number of the leading varieties of chrysanthemums have been, from time to time, imported from Japan, and when the hairy variety, Mrs. Alpheus Hardy, made its appearance it raised a sensation among chrysanthemum lovers, and we hope that variety may be a parent of quite a distinct class, although the seedlings raised from it have not yet produced any that were furnished with the glandular hairs which give to that variety its peculiar beauty. The majority of the chrysanthemums at present in cultivation have been raised in Europe, and of late years in America. Our country has started late, but has made up for the time lost, and at present the most valuable and esteemed varieties grown are American kinds. The pioneers in this field were Dr. H. P. WALCOTT, JOHN THORPE, W. K. HARRIS and ARTHUR H. FEWKES, and lately there are quite a number of amateurs and florists who are raising new varieties every year.

A new variety should never be finally judged the first year, but must be grown at least two seasons before it is well tested. Some of the most promising varieties have proven total failures the second year, while, on the other hand, many that have been condemned the first year have proven valuable when tried another season.

The hybridizing or cross-fertilizing of chrysanthemums is a very uncertain work as regards results, owing to the mass of florets which are gathered in one single head. It is very hard to tell whether the floret has been fertilized with its own pollen or cross-fertilized with the pollen of another variety of the same class, but different color, through the agency of insects, especially bees, before the hand of the horticulturist has tried his own work on it; and it is for this reason that no raiser of chrysanthemums can say with any degree of certainty that any variety is a cross between such and such varieties, except when kept separately from all other varieties of the collection. In regard to the results it is also misleading; the colors of the supposed parents are sometimes never reproduced, and if you raise as many as fifty seedlings from the same head of flower you may get all colors, but none like the two parents.

In point of vigor of growth, chrysanthemums vary considerably in various sections of the country, as well as in different seasons. Thus many of the varieties cultivated in England for exhibition cannot be grown here with any success, and *vice versa;* while last year being exceptionally wet, none of the chrysanthemums planted out of doors did as well as usual. As to the various sections of this country we find that in and around Philadelphia are grown the finest chrysanthemums in America. Some varieties also require different treatment from others; Mrs. A. Hardy, Crimson King, Belle Paule and others are very partial to excessive moisture. The same applies to pinching; some varieties if pinched late will not produce any flowers at all, such are grandiflora and others.

The culture of chrysanthemums is very simple when the cardinal points are well observed; namely, selecting strong, soft shoots for cuttings, and as soon as they are rooted never to allow them to suffer for want of room or water, and after the buds are set to encourage them with liquid manure.

After the plants have done flowering, they should be cut down to about a foot from the ground and put in the cool house or a well ventilated frame. In January the offsets from the ground, and also from the stems or branches, will be from four to six inches long, when they should be cut and planted in sand, either in pots, boxes or the propagating bench; a south aspect and a temperature not above 55° by natural heat are very essential. As soon as the cuttings have rooted they should be potted in two-inch pots; from those they should be repotted in three weeks into three or four-inch pots, and again when well rooted into five or six-inch pots, by which time the first pinching takes place. After the plants are well established in the five or six-inch pots they should be planted to their final quarters; if in pots, ten to twelve inches is large enough to grow the best plants; if in benches or boxes, four inches of depth will suffice for the roots.

The place where chrysanthemums are grown should have all the light, sun and air from the time the cuttings are rooted until the time the cuttings are again ready to be cut. The soil that these plants seem to prefer is good turfy loam, well mixed with clay and enriched by ground bone, sheep manure or other manures or fertilizers.

A WHITE FRINGED GENTIAN.

One of our readers in Connecticut mentions two plants of white Fringed Gentian, which grew in Hampton, in that State, and wishes to know if plants with white flowers have ever before been found. In reply, we will say that it is on record that the flowers are occasionally white; but we do not know that seeds from such plants will reproduce white flowers. We think they will not, and believe the variation is not fixed or constant.

* THE CARE OF PLANTS IN THE WINDOW.

In order to grow plants well in the house they must have plenty of light. Unless this can be given, they will be spindling and weak, and there will be few, if any, flowers, and these will be inferior.

The best exposure is a southern one; the next best an eastern one. A south window is the one in which to grow geraniums, lantanas, heliotropes, and all plants fond of much sunshine, while the eastern one is better for begonias, fuchsias, and such plants as care more for the sun in the early part of the day than they do for it after its rays become more intense. A west window gives too much heat unless shaded considerably, but it is better than no window at all, and if you have no other to give your plants, don't go without them. A curtain of thin muslin will temper the heat greatly, and vines can be trained over the glass in such a way as to break the fierceness of the sun's rays. A north window is not suited to the needs of flowering plants, but some which are grown solely for foliage can be kept there. Ferns, palms, aspidistra, ficus and lycopodiums will do quite as well there as in a window exposed to the sun. English Ivy can be trained about it. Tradescantia, in baskets, can be hung up in it, and thus it can be made beautiful without flowers if you have a love for "green things growing."

One often sees weak, scraggly plants in the sitting-room windows. They seem to have grown too rapidly to be healthy. Two things combine to bring this about: lack of fresh air and too much heat.

If you want fine plants—and if you really love flowers you want nothing else—you must give them plenty of air. They breathe, as you do, and without fresh air they pine and become diseased, the same as you would under similar conditions. You occupy the same room, it is true, without suffering as much as your plants appear to, but you are not confined to it all the time, as they are. You get air when you go out of it. They are obliged to stay in it. Always have your window arranged in such a manner that it can be lowered at the top, thus letting a stream of pure air blow in over the plants. If storm-sash is used, have a hole in the bottom of the outside sash, and another in the top of the window sash. When these holes are open, a stream of fresh air will rush in below, flow up between the twe sashes, and enter the room through the hole in the top of the window sash. These holes can be left open the greater part of the day, but should be closed at night. Opening doors from the hall, or some adjoining room into which air can be admitted from without, will let in a supply which your plants will appreciate fully. Never let a stream of cold air blow directly on them, however. Aim to have the cold air mix with the warm air of the room before it reaches them.

The air of the living-room is generally kept too dry and warm for plants, as well as the human occupants of the room. About 70° during the day time and 15° less at night would suit such plants as one finds in ordinary collections.

Aim to keep the temperature as even as possible. Too great heat forces a weak growth, and has a tendency to blast any buds that may form.

In a room where the air is warm and dry the red spider will do deadly work. In order to keep him at bay, the plants must be given as much moisture as possible. Keep a vessel of water on the stove, to evaporate. Shower the plants daily. If the pots are used without saucers, the table on which they stand, or the shelves, can be covered with an inch of sand which can be kept in place by tacking cleats along the edge of the stand. This sand will take up and retain the water which runs through the pots, and thus a steady moisture will be given off from it, for there will be constant evaporation taking place. Keep the air of the room in which plants are kept as moist as possible, if you want to grow strong, healthy plants. This is a very important item, and should not be neglected.

Showering daily helps to keep the foliage clean; and unless the dust, which settles on the plants when sweeping the room, is cleared away the pores of the leaves become clogged, and the plant finds it difficult to breathe, for the pores of the leaves are really the lungs of the plant.

* A chapter from *Home Floriculture*, by EBEN E. REXFORD, now in process of publication by JAMES VICK SEEDSMAN, and to be issued in December.

In a moist atmosphere many plants can be grown which would die in a dry air, and all plants do so much better where there is plenty of moisture in suspension that the amateur who wants his plants to do their best will aim to supply it. It has often been observed that fine plants are often found growing in the kitchen, while those in the parlor are sickly. The explanation of this is, the kitchen air is moist, because of the cooking, washing, and other work of that kind going on there, while the parlor air has all the moisture extracted from it by intense stove and furnace heat which there is no moisture to modify.

Stir the soil in the pots at least once a week. An old fork is a good tool to do this with. This allows the air to penetrate to the roots, and keeps weeds from getting a start. Keep all dead leaves picked off, and remove fading flowers. It is a good plan to cover your plants with a thin sheet, or a newspaper, when sweeping. It is another good plan to remove them to the kitchen at least once in two weeks, and give them a thorough washing. This helps to keep down insects, and prevents them from becoming incrusted with dust.

By all means provide yourself with one of the brass syringes or elastic plant sprinklers for sale by dealers in florists' goods. With one of these you can throw a strong stream or spray of water over and among your plants, and apply it effectively, which you cannot do if you depend on a whisk-broom for a sprinkler. A "sprinkler" is not what you need, but something that has force enough to take the water in all directions, and in such quantities, and with such volume, as the case may require.

Turn your plants at least twice a week so that they will get the sun and light on all sides. This prevents their becoming drawn to one side, as they will be sure to do if not turned frequently. Don't neglect to do this if you want good-shaped specimens. And be sure to give all the light possible; don't shut it out from the window where you have plants, by curtains or lambrequins. Let your plants furnish the beauty for the window. Some are afraid of letting in the sunshine upon their plants because it will fade the carpet. If you care more for your carpet than you do for your flowers, give them to some one who is willing to do the fair thing by them, and concentrate your energies on the protection of the precious carpet, but don't attempt to compromise matters between the two, for this will surely result in failure, so far as your plants are concerned.

PARIS REVERIE.

The sun shines brightly, or did so until about four o'clock this evening, when seated for five hours in a newly painted iron chair in front of the Palais du Louvre, I noted first the lovely dresses of pretty women flitting by, then remarked that the disposition of the gardens, as the French say, *disposition*, had been changed, the flowers were arranged in square beds, with borders in a style of old English period, that is to say, in masses, heaps. Red geraniums were towering over modest yellow buttercups, while pansies bowed deferentially low to the ground, and dahlias in dainty pink buff and scarlet, imposed insolently their flaunting colors upon white daisies. Well, all the flowers were there, "*sans ceremonie*," English fashion. Gladiolus and chrysanthemums were in the background, but delicately tinted and seemingly improved in tone and grace. After months of absence all seemed fresh and beautiful.

A coachman and self grew confidential in comparing notes, as the pelting rain drove me into a cab.

"Have you seen Jeanne d' Arc?" said he. "Oh, no," said I, "what is going on now with her statue, which everybody knows is very graceful and of bronze, representing the inspired girl and martyr to the best manner "selon" the period of execution."

"Why," said he, "since the play has been dramatized and created by SARAH BERNHARDT, every peasant almost decorates the monument with some love offering." So chrysanthemums played a leading role upon her monument.

London fogs make English people indifferent, and rains cause heaviness, and flowers are trampled under feet in the surging, busy crowd; but in Paris every flower must do its mission in decorating or in beautifying some home. I have seen the prettiest chrysanthemums in London, principally the Japanese species, that are at the present moment so much in demand.

While these purple-hued messengers of condolence grace the bier of the dead in Paris, in London I have seen them on the dinner and tea table thrown on in masses, where your imitation is as real as the old polished mahogany or oak table covered with damask and royal Worcester china. Comparisons creep in and almost crowd our floral interjections.

Carts of figs and flowers are upon street corners and American tourists abound, all homeward bound. They commence with Paris and end with Paris, exhausting all the *bric-a-brac* collections, and delighting the hearts of the shop-keepers, who mentally exclaim as the punch bowl, reputed to have belonged to one of the GEORGES, or the snuff-box of LOUIS XIV, (how many he must have had) receives its last good-bye polish. "Under two Flags" good-bye *mon ami.*

Like the flowers we see to-day in Paris, next season we may meet the same growing on American soil, for Messieurs VILMORIN AND ANDRIEUX have confided to me the fact that their choicest collection has gone over to Mr. VICK.

In my next I'll give you a floral design, and the prettiest dog in Paris unconsciously posed, but I am anxious to say that Pink chrysanthemums and *pink* ones, are just in season, and while my sketch dries—I'll miss the steamer which carries over the homeward bound tourists and the Comte de Paris and his son, the Duke d' Orleans.

ADA THORPE LOFTUS.

JOCKEY CLUB, ETC.

No one seems to come forward, as yet, with information about the Jockey Club. And yet, last year, there was, either in *The Century* or *Scribner's*, an advertisement from some flower dealer of the seeds of this plant throughout the season. My own knowledge of it is somewhat confused. Years ago some English lady who had recently settled in Canada sent to me, in Buffalo, the seeds of this plant. A kindness which I accepted gladly, as an outgrowth of the sympathy which naturally exists among flower lovers, though they may be entire strangers to one another. Of the plant I only knew that it was something she had prized in her English home, and when an uncouth plant grew up from the seed I had planted, and stretched its cuttle-fish arms upward for some time without showing any signs of bloom, I naturally concluded that the thing was a mistake. But one evening a friend was with me passing from point to point in the flower garden, and presently she said, "What is this exquisite perfume?" I was already puzzling over the same question, and following on together in a tour of investigation we came to my ugly duckling, holding out from the tips of its long arms the delicate drooping clusters of white blossoms, and filling all the air with their fragrance. I think the plant I am now cultivating, under the same name is the same thing, and I believe also that it is Mirabilis longiflorum.

I have tried pegging it down this summer with some success, as it is thus kept from overtopping the other flowers, and throws up an abundance of bloom among the poppies and petunias, without betraying its length of arm.

I wish to make some inquiries about the hellebores. In the floral display preparatory to and during Easter, in Boston last season, there was nothing more beautiful than the hellebores, with their varied and delicate veinings. Coming as early as they do, they are, in their new varieties, very desirable plants, and if these new varieties are as easy of cultivation as were the old Christmas roses, there is no reason why we should not have them in abundance.

I know but little about them, and yet they were a product of the old time flower garden of which I have been speaking, and this plant came, too, as I remember, from strange English hands in Canada. Once planted it grew on from year to year, blooming under the snow, so that I could lift the half melted cover and find the greenish-white blossoms hidden under the leaves, as I have often done with pansies. They were delicate, and pleasant to gather in the dearth of early blossoms, but they bore no comparison with the beauty of the new varieties. I have seen no directions for their in-door cultivation in any of the catalogues I have examined, and do not know whether they will bear the rough usage I gave to the old-time Christmas roses.

The roses received from you in the spring have made remarkable growth, blossoming all the summer in spite of my

adverse efforts, and still holding their own. I intend to bury them for the winter, as was my practice long ago with tender roses.

I am glad to see what you say about the Asclepias tuberosa. I had a most neck-breaking experience during the summer in trying to find out what this flower could be. But in flying past on the Limited Express there was little time to investigate the plant whose fine pink and orange heads gave such brilliancy to the landscape. By watching far ahead, however, I got a sufficiently fair view of them to be sure that they belonged to the milk-weed family. Our gardens have still much to borrow from the fields.

H. E. G. Arey.

PRIZE VEGETABLES.

The practice of offering premiums for the products of our seeds which was commenced last year at the New York State Fair was continued this season at the Illinois State Fair at Peoria, where the sum of $1,000 was awarded in prizes. The following circular letter sent to the competing exhibitors October 15th gives a brief account of the show and the result reached by the judges. It is here published as a matter of general interest to farmers, gardeners and other plant growers.

Dear Sir:

It is with pleasure that we send you this account of our Second Annual Exhibit of products grown from seeds bought of us. The exhibition was made at the Illinois State Fair from Sept. 29th to Oct. 4th, in accordance with the announcement in our annual Catalogue for 1889.

We feel highly gratified at the result, and wish to return our heartfelt thanks for the very liberal manner in which our patrons have responded to our efforts in this line. The exhibit of 1890 was larger in every way than the one of the year before. Every State in the Union was represented, besides three of the provinces in Canada. One exhibit came from Prince Edwards Island. There were 1,000 entries, making a showing on a scale of magnificence scarcely hoped for.

As to the character of the Peoria exhibit, the words of a Peoria newspaper man can tell it best. He wrote of it as follows:

"In a large oblong tent at the southern side of the State Fair Grounds was to be seen the display of James Vick Seedsman, of Rochester, N. Y. In the center of the large tent was built a raised and receding platform displaying an exhibit of flowers. Around this and lower down, were the products entered for the prizes. Still outside of this and going clear around the tent was another platform, fairly groaning with as fine garden products as the great country could produce; all grown from seed furnished by Vick. It is too much of a task to go into a detailed description of the great show, but it was a sight to see the judges with puzzled and distracted countenances, attempting to decide which of the offerings were entitled to preference. It is variously estimated as to the number of people who viewed the grand display, but the society estimated the number at 200,000. It was a great exhibition, and reflects great credit on the great and most successful seed growers in the world."

No one can express the difficulty of the judges in attempting to arrive at a decision, and their judgment is the result of much worry and pains.

In the Cabbage exhibit, for instance, Joseph Ward of Eau Claire, Wis., had three heads of Cabbage weighing sixty pounds, but the judges reluctantly threw him out from the fact that one head was cracked open. Weight of first prize 56 pounds, second 55 pounds, third 54 pounds.

The Celery display caused the judges much trouble in their decision. But after a long time they reached a conclusion, rejecting those with any defects at all. The first prize was very large and perfectly blanched.

The Potato showing was magnificent, especially when the great drought which extended over the whole country is taken into consideration. H. W. Williams, Garnett, Colo., showed eleven Potatoes which made a peck, but of another variety than the Early Market.

In Cauliflowers the judges were compelled to reject those upon which there appeared even the slightest defects. Weight of first prize 34 lbs., second 36 lbs., third 28 lbs.

The collection of Tomatoes was very fine, and some of the largest and best were imperfectly packed, and were spoiled in transportation. The judges were governed by the appearance of the exhibits.

Horace Dysit, Franklin Grove, Ill., is favorably noted in the Melon exhibit.

It is to be regretted that the collection of Onions from Beaverton, Oregon, grown by George H. Thomas, did not arrive earlier; as it was, the judges had awarded the premiums when his exhibit came. His twelve Onions weighed eighteen pounds. J. A. Slaymaker, Atkinson, Neb., showed a number which averaged two pounds each.

In the Mangles the cut shown in the Catalogue was taken as a type, and the decision was rendered accordingly. Mrs. W. P. Bartlett of Livermore, Cala., showed one which weighed thirty-nine pounds, which was the largest of the collection.

The judges were appointed by the State Board of Agriculture of the State of Illinois, and were experienced gardeners.

We have decided to make this annual exhibit a feature of our business, and the place of the next display will be duly announced in our Catalogue of 1891. We hope our patrons will continue to second our efforts, and in time all sections of the country will have been visited by a show of our products.

We know some mistakes were made, but as this was our first large exhibit of the kind, we trust our friends will overlook them, as they were unintentional.

Again thanking you for your kindness, we remain,

Yours, &c.,

James Vick Seedsman.

PRIZES AWARDED.

Cabbage—

First, Davis Bros., Jackson, Mich., $75.00.

Second, J. D. Cress, Jackson, Mich., $35.00.

Third, G. H. Newson & Son, Hornellsville, N. Y., $15.00.

Celery—

First, Chas. H. Graham, Bowling, Mich., $75.00.

Second, Edward Gorham, Hastings. Mich., $35.00.
Third, M. Wetterling, Ionia, Mich., $15.00.

Potatoes—

First, Ralph Hoge, Hubbardston, Mich., $75.00.
Second, J. W. Liler, North Platte, Neb., $35.00.
Third, David Laming, Rochester, N. Y., $15.00.

Cauliflower—

First, Joseph Ward, Eau Claire, Wis., $75.00.
Second, William Kloss, Fishcreek, Wis., $35.00.
Third, John Ward, Eau Claire, Wis., $15.00.

Tomatoes—

First, B. A. Ferris, Auburn, N. Y., $75.00.
Second, Charles E. Brown, Mimico, Ont., $35.00.
Third, William F. Seebold, Peoria, Ill., $15.00.

Melons—

First, B. F. Hoyt, Manchester, Iowa, $75.00.
Second, Mrs. J. L. Hagenbach, Farmdale, Ill., $35.00.
Third, John F. Orr, Forrest, Ill., $15.00.

Onions—

First, F. L. Burt, Sunderland, Mass., $75.00.
Second, John Robinson, Fairport, N. Y., $32.00.
Third, G. H. Newson & Son, Hornellsville, N. Y., $15.00.

Mangels—

First, David Wilds, Springfield, Iowa, $75.00.
Second, James West, Rochester, N. Y., $35.00.
Third, G. Palmer, Kennedy, N. Y.

THE VINCA MINOR.

One of the dear old-fashioned plants now rarely met with, is the Vinca minor, commonly known as Periwinkle or Myrtle. Our grandmothers delighted in building artificial mounds, and planting them thickly with myrtle, which would soon cover each miniature hill with a mantle of living green, neat in summer, deeply green in winter, and dotted with bright blue stars in spring and early summer. Sometimes they planted a box with the ever-ready myrtle, and placed it high on some shelf or table, carefully training the myrtle downward until the box would be entirely hidden from sight, and the long glossy ropes of green would reach quite to the floor. The florist with his tempting catalogue was then unknown, and often the only bit of green our grandmothers saw through the winter months was the pot of myrtle in the window and the green mound before the door.

But now the old favorite is obsolete and almost forgotten in the rush after gayer flowers. Yet the good old plant, dear from old associations, can well be utilized in our modern gardens, and to the class of people for whom "nothing will grow," it is a real boon, as it cannot be killed by neglect, will thrive in the poorest soil, and will stand the longest drought. It will grow in close, shady places, where even grass will not, under evergreens and bushy shrubs. It is extremely graceful trailing over rock-work, and is well adapted to such a situation from the tenacity of its roots thrown out all along its creeping stems, and from its ability to withstand dryness. But wherever it is used, it must be remembered that it will brook no rival. Perhaps this supreme selfishness is the cause of its neglect; be that as it may, this vinca will certainly appropriate all ground within reach of its long arms, and then barricade its stolen territory by chains and counter-chains of root-locked stems, as tough as cords and thick as grass. Still for some purposes, this crowding, over-reaching habit makes the plant even more serviceable.

I know a small country grave-yard which cannot be dignified with the name of cemetery, so overgrown is it with weeds and grass—shame to tell it—with underbrush even. But in this neglected spot, like an oasis in the desert, there is one grave, that summer and winter, is a deep, smooth bank of green, marking the spot where a devoted daughter, before her departure to a distant land, had planted with tears the old home myrtle on her father's grave. How often in this shifting, ever-moving age, do we leave the ashes of our dear behind us! Many an otherwise neglected grave might be cheered and beautified by this modest little evergreen, hiding the pitiless clay with its carpet of deepest green.

We have on our grounds a stiff clay bank, the naked yellowness of which was long an eye-sore to us. Grass utterly refused to grow on it, and, as a last resort, we planted it thickly with the blue Vinca minor, which soon grew finely and fulfilled the double purpose of usefulness and beauty, its many roots binding the soil, prevents washing and wasting of the banks, and its growth hid the unsightly clay. I have seen the vinca planted also on the ugly cyclone cellars so common in some parts of the West, and the effect was good, although nothing on earth could make a cyclone cellar a thing of beauty!

L. S. La Mance.

CLOTH COVERS FOR MAGAZINE.

We will furnish elegant cloth covers for the Magazine to our subscribers for 25 cents each, and prepay postage. Any bookbinder can put on these covers.

VICK'S MAGAZINE PREMIUMS.

With the next or December number the present volume of the MAGAZINE will close, and, all those whose subscriptions terminate with the last number of the year are discontinued unless a renewal is made before the January number is sent out.

With our next volume we shall again offer a copy of the beautiful illustrated poem, "Myself" to each subscriber, thus giving a chance to new subscribers to obtain a copy of it. To our present subscribers who already have it, and may not want a second copy, we shall give the privilege of selecting either one of two books which are of practical value to plant growers. These books are, first, *Practical Garden Points*, and secondly, the *A,B,C of Strawberry Culture*. The first mentioned book contains chapters on Village Improvements, the Culture of the Gloxinia, the Cineraria, Annuals in the Winter Window Garden, Winter Supply of Violets and Pansies, the Calceolaria, the Cyclamen, the Rose as a House Plant, the Strawberry, the Raspberry for Market, the Blackberry, Apples, Grape Vines, Mushroom Growing, Asparagus, Peas, Onion Culture, Cabbage, Celery, Keeping Celery in Winter, and Root Crops. All the subjects are fully and carefully treated by writers having practical experience.

The *A,B,C of Strawberry Culture* is a book just published. The author is T. B. TERRY, a well known farmer, writer and fruit-grower of Ohio, who fully understands his subject. No one can read the book and put its instruction into practice without becoming a skillful strawberry grower.

Clubs of five subscribers without premiums will be sent for five dollars, and any additional number at the same rate.

For a club of four subscribers at $1.25 each, each subscriber having a premium, the club sender will be entitled to one of our Portfolios of Rare and Beautiful Flowers, in large quarto form, with six large, beautifully colored plates with letter press descriptions.

For a club of five subscribers at $1.25 each, each subscriber having a premium, the club sender will be entitled to a copy of the new book, *Home Floriculture*, by E. E. REXFORD, which is to be issued in December. This will be a valuable work on the cultivation of garden and house plants. The book is to be elegantly illustrated and handsomely bound. All who are acquainted with Mr. R.'s pleasant style of writing will know that his book will be attractive, and as it is written from his own experience it will have a thoroughly practical value. Our space here does not admit of detail in the description of it, but it will be very full in all that pertains to the most desirable of cultivated flowering plants.

Any person sending one hundred subscriptions at $1.25 each, without premium, on or before June 1st, 1891, a cash prize of $75 will be given, and for fifty subscriptions at the same rate a prize of $30 in cash.

For a club of one hundred subscribers at $1.25 each, each subscriber to have one of the premiums offered to single subscribers, a cash prize of $30 will be given, and for fifty subscribers at the same rate, a cash prize of $13.

To the person sending the largest number of subscribers, as above, over one hundred, an extra prize of $13 will be given, and in the same manner for the largest number, over fifty and less than one hundred, there will be an additional prize of $5. We hope to have the help of our friends everywhere in extending the circulation of the MAGAZINE by saying a good word.

BINDING THE MAGAZINE.

We will bind the MAGAZINE in nice cloth covers, for any subscriber, for 50 cents, and return the book, with the postage or expressage prepaid by us. If subscribers will send us the eleven numbers in season, we will add the December number and have the volume bound and returned, if possible, before the Christmas holidays. Please give your name on the package when sent, so that we may know to whom it belongs.

LOST NUMBERS.

One number more completes the volume for 1890. If any number has failed to reach any subscriber during the year, and the volume is thus incomplete, please send us a postal card, stating what number you need, and it shall be forwarded if we still have it.

WRITINGS OF DR. GRAY.

Under the title of "Scientific Papers of Asa Gray," Mr. Chas. S. Sargent has selected, prepared and annotated some of the many papers of Dr. Gray which he contributed in his time to scientific periodicals. These papers consist of "a series of critical reviews of important scientific publications, and of historical accounts of the lives and labors of botanical worthies."

"Many of the reviews are filled with original and suggestive observations, and, taken together, furnish the best account of the development of botanical literature during the last fifty years that has yet been written."

Mr. Sargent is entitled to much credit for the admirable manner in which he has performed his willing task, as the selections have been made from so great an amount of matter that it has been an "embarrassing and difficult" work.

Dr. Gray was a voluminous writer, and the present papers are but a few of more than eleven hundred similar ones. Mr. Sargent says: "I have tried in making a selection of these articles, to display as far as possible the mental grasp of their author and his varied attainments in all departments of botany; and to include the reviews of those works which Professor Gray himself believed had played in the two continents, during his time, the most important part in elevating the science to which his whole life was devoted."

The publication of these papers by Mr. Sargent will be regarded by all the admirers of Dr. Gray as a most fitting tribute to his memory, and they serve as a means of bringing us vividly in contact with that master mind which has in great measure shaped the thoughts of all in this country who are to-day specially interested in botanical science.

The work consists of two handsome octavo volumes in elegant style, published by Houghton, Mifflin & Co., of Boston.

TWO ROSES OR ONE, AGAIN.

In answer to T. H. M. in October number of the Magazine, I would say that in my opinion the favorite old rose that seems an *exact* counterpart of the much-praised new rose Dinsmore, is Madame Charles Wood. I have known of nurserymen that have grown the two side by side and could detect no difference between them. Mad. Charles Wood does not grow as tall as many hybrid perpetuals, is exceedingly thorny, and bears throughout the whole season quantities of large double roses of the brightest, richest crimson. No finer rose of its color is grown. I am inclined to think it a variable sort, and in some localities it may not show its fine coloring and other good qualities. While the Dinsmore so nearly resembles a good specimen of Madame Charles Wood as to make distinction difficult, it is yet probable that it is an entirely different rose, and while we can hope for no finer rose than Madame Charles Wood *when at its best*, if the Dinsmore is more constant in character in some soils and locations, the two would appear quite distinct, and the Dinsmore the more desirable of the two.

L. S. La Mance.

RAISING ROSE SLIPS—FREESIAS.

Will you inform me how to successfully start roses from slips? I have read that they should be planted in sand, and then not only shaded from bright sun but from direct light. Is coarse or fine sand the kind that is used? After freesias have bloomed should the bulbs be kept in the pot until they are repotted the next fall? Subscriber.

A pot of coarse sand kept moderately moist and standing in the shade offers a suitable medium to root rose slips. If the pot is covered with a bell glass to maintain a moist atmosphere so much the better. It may take some weeks to root the cuttings, but by proper management and patient waiting success may be insured.

Freesia bulbs after blooming may remain in the pot. The practice of some growers is to allow the soil to grow quite dry and keep it so until autumn; others plunge the pots below their rims in the ground out of doors and allow the bulbs what moisture comes to them in the pots from the rains. The latter seems the more natural way.

GEN. GRANT SWEET POTATOES.

This variety described by a correspondent in the last issue is enquired for by one of our readers, who wishes to know where it can be obtained. The writer did not give information on this point, but we have no doubt that vegetable gardeners, and sweet potato growers in Ohio have it, and raise the plants in the spring for sale, and by them it will probably be advertised.

A NEW USE FOR OLD STOVES.

One of our neighbors had an old base-burner. He didn't like to see the cumbersome thing around without its doing some good, so he took off the upper part, and painted the base dark brown, and put it in the garden, planting nasturtium seeds

in the part where the pipe was as well as in the larger portion. Lo, and behold, it was soon a thing of beauty. The bright blossoms hung over all around, and almost seemed to warm up the garden as when the old stove did duty in the sitting-room, filled with hot coals.

SISTER GRACIOUS.

POTTING LILY BULBS.

Will you inform me how to pot longiflorum lily bulbs for winter blooming? Mrs. N. F.

A six-inch pot is large enough for a single bulb; an eight-inch pot will hold three bulbs.

A proper soil is composed of a turfy loam, such as would be formed by decomposed sods, or if this cannot be had, some good garden soil, and add to it an equal amount of leaf mold and a little sand, and also about a fifth part of old cow manure, or the manure from a spent hot-bed. The pot should be well drained by filling in at the bottom about two inches of broken potsherds, or if these are not handy, some coarse pebbles. Now fill in the pot about half full of soil and set the bulb on it, and fill the pot with soil to an inch of the top; press the soil down as it is placed in, and afterwards give it watering, and set the pot in a cool place in the shade to allow the roots to start before top growth commences. During this time give only sufficient water to keep the soil from drying out. When top growth commences place the pot in a light place, and attend to watering as the plant appears to need it.

GLADIOLUS.

I sent to Mr. VICK last spring for 50 gladiolus bulbs of the unnamed varieties. In due season they arrived, twenty-five light and twenty-five dark ones, in separate packages. And right here I wish to express thanks for the neat and careful manner in which they were packed.

My gladiolus bed was a triangle in shape, well spaded and pulverized. The ground was under good cultivation and I used, under and around the bulbs, superphosphate for dressing.

Every bulb I planted grew and blossomed, many having three blossom stalks, which started direct from the bulb, and these same stalks threw out two or more branches each, making, when fully bloomed, a grand display.

I gave several bulbs to friends, one of which threw up two flower stalks the blossoms on one being a delicate pink and on the other a dark shade of red. Is such an occurence usual?

The gladiolus referred to was not in a bed with any other bulbs, it being the only one I gave that friend; she planted it in a place remote from her other bulbs, as she hoped it would be different from any she already had she did not want to run any risk of getting it mixed up with her other bulbs when gathering them in the fall.

The bulbs increase very rapidly, and I found on digging that I had nearly three times the number that I planted; their culture is very simple and they keep better than dahlias, being less liable to rot. They make a grand display in the garden and are admirable for floral decoration in the house, the buds will open for days after they are put in water.

When Jack Frost sent the north wind to proclaim his first visit, I had several stalks of gladiolus only partly opened. I cut them and placed them in water, and the buds continued to open day after day until the very topmost ones were fully opened.

At the same time, in my sister's garden

were a few gladiolus that were only in bud. I advised her to take them up and pot them, she did so, taking them into a room warmed from a fire in the room next to it. So while not in a cold room they were not in a hot one. They blossomed beautifully, though the individual flowers were smaller than those grown out doors.

If one has not an abundance of gladiolus to cut from, or dislikes to cut the whole stalk, lovely bouquets for shallow dishes can be made by picking individual blossoms from the stalk. Two or three from each stalk will not be missed. and if one has fifty plants, each with two or three stalks of blossoms opened at once, material for a grand bouquet could be gathered each day. Arranged in moss or sand with leaves or ferns, one has a gorgeous floral ornament.

In the fall, before severe frosts, lift the bulbs but do not remove the foliage until it ripens, then remove that and the roots at the base of the bulbs, pack in paper bags and keep from frost and the depredations of mice. DOROTHY LINCOLN.

PRIZES AT THE ILLINOIS FAIR.

The following letter from the judges who awarded the premiums offered by James Vick Seedsman, at the Illinois State Fair fully explains itself, and shows the great interest the public take in the matter of fine vegetables. Such exhibits will do much to show what is possible in vegetable gardening.

JAMES VICK SEEDSMAN,

Dear Sir: We have just finished our task as judges on the vegetables sent to the Illinois State Fair, to compete for the generous premiums you offered, and we must say that it has been one of the hardest jobs we ever did. Among the many lots submitted there was not one which was not exceptionally fine, and coming, as they did, from all parts of the Union, it shows the uniform fine quality of your seeds.

As all were so excellent it was very hard for us to decide which was the best, and we based our decisions not alone on size or weight, but also on shape, color, solidity and other points of resemblance to the perfect specimen or type.

We have done the best we could, and sincerely hope our decisions will give satisfaction.

Judging by the interest shown, and the remarks made by the throngs of visitors to your tent, it was undoubtedly one of the chief attractions of the entire fair. Everybody eats, and no one could fail to be interested and impressed by the magnificent display of vegetables, all of which seemed to have caught the enthusiasm of their growers, and to have determined to be the best specimens on exhibition. Every assortment entered seemed to deserve a premium or special mention.

ANDREW WEBER,
FRED. KRAUSE.

Peoria, Ill., Oct. 1890.

PLANTING PEACH PITS.

I would like to know how and what time to plant peach seed to insure germination.

J. W. G., *Italy, Texas.*

It is customary in this region in the fall to place the stones in a shallow trench or bed sunk some four or five inches, and cover with that depth of soil. Open a trench with a shovel so that there will be room enough to spread out the stones in a thin layer on the surface, and then spread over them the soil that was taken out. The stones are allowed to remain until about the first of April, and then a considerable portion of them are found to be open and the meats or pits are picked up and planted an inch or two deep where they are to grow. The stones that have not opened are taken up and carefully cracked, and the pits laid in sand for the time being and as soon as possible planted.

In Texas the same treatment in the fall should be practiced, but it would be necessary to take the stones up and crack them earlier than in this climate—probably about the first of January.

HARDY PYRETHRUMS.

One of the finest of perennial plants is the Pyrethrum, and of these the large flowered species, roseum, cinerariefolium; etc., have by hybridizing been brought to produce some very fine flowers, as shown by our colored plate this month. Besides these forms there are double ones, and a packet of seed of double pyrethrums will give both single and double kinds. The plants are hardy, and the flowers are handsome for cutting during summer and autumn. The plants are easily raised from seed, and any particular variety may be increased by offshoots or division of the roots.

TRIMMING MAGAZINE.

As the numbers of the MAGAZINE are better for binding without trimming, we have thought it might be better to send them out in that way; but having tried it for two months we are satisfied it is best to return to our customary mode of trimming, as the handling during the month has the effect to tear the cover and give it a very untidy appearance. It will be trimmed as lightly as possible, so as to leave sufficient margin for trimming again at the time of binding.

OUR YOUNG PEOPLE.

ROGER'S LETTER.

NUMBER 2.

DEAR GEORGE: Do not forget, when tempted to criticise the cast of my letters to you—their colloquial or other distinctive form—that I am practicing always with reference to my future vocation of reporter, and must, therefore, give due regard to form and style, involving the distraction of trying to assign to their proper places the various forms of punctuation, the apostrophes, parentheses and quotation marks. All this to be observed, even if it result in a rather precise method of addressing you, my rollicking old chum.

I must tell you now of uncle Roger's boys. He employs in his business from twenty-five to thirty, ranging in age from sixteen to twenty years. The first time he talked of them to me he concluded his remarks by saying:

* * * "And they are good boys, too. I tell them they have to be good if they work for me. I know where every one lives, or boards; and I have ways of knowing how they spend their leisure time. If they are sick I look after them, and see that they have proper attention. I make them feel my personal interest in them."

"But you have boys of your own, uncle Roger," said I, "and I should think they would absorb your chief interest and oversight. With most men it would be so."

"I don't know how it is with other men," he replied, "my anxiety for the future of my own boys creates a greater interest in those I employ. I should be sorry to know that any one of them should leave my service and 'go to the bad.' I want each boy to take away with him such fixed germs of principle as shall serve to develop in him a sterling manhood."

This kind of talk, George, has made me observant of his methods. I notice, frequently, a large placard hanging by a suspension wire in the "hat and lunch room," on both sides of which are the words, *Office Talk, To-night.* On such occasions any grievances or special requests the boys may wish to make known are heard, and a few words of advice or cheery encouragement are given in return. As a rule, the boys do not get away without a good laugh.

For instance, I was allowed to be present one night, and as the boys filed in, uncle Roger wheeled about in his office chair and saluted them with a welcoming word and wave of the hand that were assuring. Then remarking that the "grievances" must always have a first hearing, he asked them to proceed.

A silence followed. The boys looked at each other, looked at uncle, smiled, and were still silent. Then he exclaimed:

"What, no grievance, to-night? Twenty-nine boys with no complaint to make after a week's time for brewing one up! Something must be wrong."

This raised a laugh. A short talk from uncle followed, the talk suggested an anecdote; another laugh followed, and then the boys were dismissed

"You see now," said uncle to me, "that I gain the confidence of my boys by proving my personal interest in them. They proved theirs in me at the late fire, when they did valiant service by working like heroes to save my stock and machinery."

I had already learned that on Thanksgiving day each boy has a plump turkey at his disposal, those who board taking theirs to the home of a friend respectively, thereby not only securing a welcome for the day, but a pleasant change besides.

On a recent holiday, uncle took his boys to see the mammoth painting of the battle of Gettysburg, and I joined the company to have the benefit of uncle's explanations and comments, for he is a fine talker. These I cannot transfer to the limited space of a letter, but will give you my own impressions in brief, well knowing, the while, that you will be

thrown into a state of chronic unrest until you can see it for yourself. Of course, you know the painting is not a new thing, neither is its exhibition; but it ranks among those superlatively good works that can never grow old in interest.

We chaps who have come on the stage of existence since the War of the Union cannot be satisfied with simply hearing our seniors describe battlefields, when so perfect a representation as this is in existence, but must see it with our own eyes, if possible.

You, probably, know that the painting, like others of its class, is circular—no beginning, no end — arranged around a building in such wise that the spectator, looking from a circular balcony, sees nothing else from earth to sky but the pictured battlefield. So numerous are the salient points, so true to life, and so perfect is the perspective that a vast area of space is embraced in the view. The distant hillsides teem with troops and artillery that bear the scrutiny of a field-glass, while the intervening wheat-fields, trampled and sadly cumbered with the results of deadly conflict, the stretches of plain that seem alive with the hurry and scurry of moving cavalry—all appear so real as gradually to deceive the eye and almost the consciousness as to their reality.

In the foreground all objects, whether men, cannon or horses, are depicted even larger than life, and with such fidelity of detail as makes each one worthy of special study. You first see it as a whole—as a veritable battlefield; then you begin to notice objects more in detail. You see a prostrate man taking a last look at a photograph; another handing letters to a comrade who kneels by him with a cup of water. You see a mounted soldier swinging low from his saddle to hand his canteen to a fallen comrade. You see smoke issuing from field-pieces, and are sure it moves as you look. You see a kindling fire, which you are certain was not there when your eye swept the place before. At last, you are half perplexed by the seeming reality of it all, and you fall to studying the minutiæ of detail in the dead horses near you. They look so really dead that it seems they *must* have been once alive. You examine a hoof, a nostril, an ear; each is perfectly executed —each a study in itself, while the whole creature, lying prostrate before you, becomes more and more of a marvel as you reflect that scores of others are portrayed with equal fidelity.

But enough. You'll see it all, some day, for yourself, then think of me. I am told that when one has studied this scene in the winter season, its green fields, leafy trees, blue skies and warm atmosphere (of the building) become so real that one forgets that summer is not present, and the sudden egress to bleak weather and snowy earth outside is startling.

You remember, I wrote you of the gambling palace here, and how the pampered dog of the establishment one day stealthily licked, over and over, the juicy boiled ham prepared for the midnight feast, and how uncle Roger enjoyed the sight.

Well, a few evenings later, he saw—and so did I—a sight that bleached his face as white as ashes. His only daughter's husband was among the gamblers, seemingly at home. Uncle Roger bowed his head upon his hands and moaned as if in physical distress. I felt anxious and embarrassed, and in my desire to comfort him, said:

"It is surely not so bad as this, uncle Roger. What if he were a hopeless victim of drink? then how much your daughter would have to suffer; or, if he were a forger, how much more would she be disgraced. This is certainly far less to be deplored than many evils that could be named."

He answered, bitterly: "You know nothing about it. This infernal vice leads to all others—*to all others*, you understand. It leads to excessive potations when depressed by ill luck. It leads to reckless sacrifice of money belonging to others—money to be replaced by winnings that are never won. Its victims become recklessly unscrupulous of results. All worthy ambition becomes paralyzed. The claims of love and home are ignored. The wife's jewels may be purloined and sacrificed without scruple. The necessity of retrieving losses seems to justify the act. The infatuation of gain forever lures them on. The exasperation of loss begets a dogged persistence. Thus a duplex demon goads them forever from without, and enthralls them while within.

"All this, however, does not apply to the regular habituces of this gilded tophet. The enormous incomes of that class are sufficient to keep them cool over losses. Neither the sumptuous habits of their families, nor the just dues of creditors are imperiled by their unlawful transactions. They come here from love of unholy excitement. They seek pastime that shall not debauch their pampered bodies. They revel in mental dissipation that neither muddles the brain nor unnerves the hand. Its wickedness is an inspiring incentive, while its enforced privacy yields unhallowed zest. Small fortunes may be lost and won each night. All the same the stars shine on, while the victims of poverty's vices groveling in the slums below, suffer penalties therefor. But that is neither here nor there. The point with me in this case is, that even as a gambler, that son-in-law of mine has no place in that company of millionaires. He has no princely fortune with which to withstand the cool skill of those gamesters. This one night may beggar my daughter—yes, her father, too, for, Roger, he has my name on his paper; he has my name for thousands."

Ah, George, let me tell you, old boy, that since listening to my uncle's words, since witnessing his distress, since realizing the devilishness of the gambling fiend and the sure ruin of its victims, I cherish an utter abhorrence of the whole system of money-gain by chance (including raffling, betting and other erratic methods), that will never leave me—never. Yours truly, ROGER, JUNIOR.

If Roger's uncle is right in his estimate of the gambling vice (and who shall say he is not), it would seem that a young man might better part with his right hand than that it should ever learn the baleful cunning of shuffling cards for gain. MARIA BARRETT BUTLER.

MY LITTLE BOTANISTS.

For several years I have been interested in studying the habits of a number of little friends who, like myself, are great lovers of flowers. But I find in flowers only my recreation; they, however, find in them their whole living. My friends are the honey-bees, which live in snug little houses on the south side of my own home, and which, year by year, furnish my table with the most delicious of all sweets—pure honey.

The bees usually detect the earliest blossoms before I do, for at the season of the year when the earliest flowers come, it is usually very bad walking, while the bees fly high above the mud through the balmy spring air. I know that they have found flowers when I see them coming home with great balls of "bee-bread" fastened to their hind legs. This bee-bread is nothing less than pollen, which is a necessary food to young bees, though it would seem that the old bees do not much need it. This pollen they mix up with honey and feed to the young bees, which in the spring are found in great numbers inside any healthy colony.

This bee-bread is of many colors, as bright yellow, red, green, brown, black, of every shade. They do not gather it from all flowers, but generally from the flowers which at the same time yield some honey. In the early spring they find it on the "pussy" willows, on the maple trees, the skunk cabbage, then on the apple, pear, cherry and peach trees, and later from the numerous flowers which make our homes beautiful.

If they gather more than can be used from day to day it is carefully stored up in empty cells to be used at a time when none can be found in the fields. This pollen, under the microscope, is found to consist of small but distinct grains, which are often very beautifully marked over the surface with dots and lines. These marks for the same family of plants are often quite constant.

In the economy of the plant, pollen is of great value, and hence bees, flying from flower to flower, do a work of great importance, as they carry pollen from plant to plant, and thus accomplish for the plants "cross fertilization," by which the vigor of a species is maintained. Bees do not visit all open flowers promiscuously, as many think; but confine themselves to one species, changing from day to day to those species which yield most honey or pollen. This we know from the pollen they bring in, all being

of one color, and the honey all from one species of plants.

Bumble-bees, near relatives of the the honey-bees, cause our red clover plants to bear seed through their dissemination of pollen. Hence, the first crop of clover has no seed, for the bees are then scarce. Sulphur showers, which are sometimes seen in pine regions, are produced by the pollen from the pine trees, which has been taken into the air by the wind.

Sometimes my little friends meet with trouble in gathering their bread, for some pollen is very sticky and adheres in the wrong place. Such is the pollen of the milkweeds. Some seasons, in the autumn, the bees work on these weeds, and great balls of the pollen gather on their heads, and at times so interfere with their comfort as to cause death.

But it is not for pollen alone for which bees visit flowers. They are after the honey, too. This they find down in the tubes or at the base of the petals on the inside of the flower. Some flowers produce no honey at all, others so small an amount that bees will not visit them, while others produce it in generous amount. In Central Pennsylvania the following are our principal honey plants, in the order of flowering: 1, the fruit trees; 2, the raspberries; 3, the locust trees; 4, white clover; 5, the basswood or linden tree; 6, the buckwheat. The honey from the white clover is very nice and clear, while that from the buckwheat is of a dark color. Bees do not hesitate to gather poisonous honey, as that from the laurel family of plants. This is poisonous to man though not to bees. In the autumn, if honey is scarce, they will fill their hives with cider or any material containing a little sugar. Then, when winter comes, they grow sick on such food and often perish in great numbers.

The life of a bee depends upon the amount of work it does. In the busy summer months they do not live much more than thirty to forty days, but in the winter, when resting and nearly asleep, they may live six months. In the summer season they lead lives of the greatest activity.

GEO. G. GROFF.

AUTUMNTIDE.

Across the meadows sere,
Where lately grew
A myriad dainty blooms
Of every hue,
O'er browning stubble fields,
Where waving grain
Erst made a billowy sea
Of all the plain:

Up to the distant hills,
Where summer's sun
Lingered to say good-night
When day was done;

Down through the sunny vale,
In beauty drest,
Where swift-winged swallows laved
Each downy breast;

Out through the dim wood aisles,
Whose leafy screen
Hid many a pretty home
In coverts green,
A beauty overlies—
Wond'rous as wide—
It is the golden glow
Of autumntide.

SUSIE E. KRNNEDY.

LILIES AND ROSES.

Dwells not fairy nor sprite
But some spirit of light
In each bud that the sunshine uncloses,
For born in the skies
Are the beautiful dyes
That hide in the hearts of the roses.

And the stars sweep at night
O'er the lily-bells white,
Till that whiteness enchanteth the vision
Like the wiles of a dream,
And their stately shafts seem
Fit for shrines in the pastures elysian.

In the crimsoning west
Lie the pillows of rest,
Where the dreaming flower-artist reposes
Ere he comes from the skies
With the beautiful dyes
That he hides in the hearts of the roses.

H. E. G. AREY.

EDITOR'S MISCELLANY.

ON THE HILLS.—By Professor Frederick Starr. Illustrated. Boston; D. Lothrop Company. Price $1.25. This capital series of geological talks by Professor Starr, will have strong interest for young readers, partly because of the character of the subject, an partly because of the attractive manner in which it is treated. For a wide awake boy with a thirst for knowledge, no one of the natural sciences has such a fascination as the study of the physical formation of the earth on which we live; and when its scope is enlarged by a study of the extinct forms of life, whose bones are scattered through the later geological strata in every part of the world, it becomes doubly fascinating. It is with this part of the subject that the author specially deals. He describes tramps taken by himself and companions in various parts of the country in search of fossil remains, and the results. In the opening chapter are described the formation of glaciers and the moraines that mark their paths. In a talk called "A Queer Bundle of Sticks," we are told the story of some curious fossil discoveries near Jamestown, New York. Following chapters treat of extinct fish and reptilian forms, earthquakes, mountain making, erosion, extinct birds, coal formations, etc. The work is fully illustrated.

U. S.—Curious Facts, Historical, Geographical, Political. By Malcolm Townsend. 8 vo, cloth, 482 pages, numerous maps and illustrations, $1.50 net; paper 75 cents net. Boston: D. Lothrop Company.

There is a fascinatian in figures and an equal attraction in facts. Facts and figures are assumed to be the dryest of all things in print, but that they are not always so, this unique book by Mr. Malcolm Townsend fully attests. The compiler has here gathered together and put into "get-at-able" form the results of a life-time of desultory but interested research among the curious historical, geographical and political facts in United States history. It is a book that needs to be seen to be appreciated; once seen it is certain to be studied. It is a book that should well find a place in every American home. It will prove a boon to many a cross-examined parent. Every schoolhouse that has the American flag floating above its entrance or in which the strains of the Star Spangled Banner rise from the sturdy young throats of our boys and girls, should also possess as a ready reference book this really valuable, instructive, suggestive and entertaining contribution to the attractive in American history.

HUMAN MAGNETISM, by H. S. Drayton, M. D., published by Fowler & Wells Co., 775 Broadway, New York. It considers all the latest phases of the subject, including its Nature, Physiology and Psychology with its uses as a Remedial Agent, in moral and intellectual improvement, etc. It is a work that is likely to attract a good deal of attention. Public interest in the phenomena of animal magnetisn has never been more substantially shown than at the present time. The phenomena are no longer regarded in the vague, mysterious light of thirty or forty years ago, when the mesmerizer or magnetizer was an object of distrust, but have become the property of science. They are recognized as the effects of a peculiar psycho-physical state more or less easily induced by certain procedures, and as much subject to examination as the effects of electrical action upon animate or inanimate objects. What may be the practical issue of the increasing knowledge on this subject is rather shadowed than distinctly shown in the present work.

THE CIDER MAKER'S HANDBOOK, a complete Guide for making and keeping pure cider. By J. M. Trowbridge. Illustrated. Orange Judd & Co., New York. This book is a practical work that will be found of great value to the cider and wine maker. The author evidently has had a thorough experience with the subject of which he treats, and here supplies the information with all the minute details that every one should possess who attempts to make cider or wine.

CENTAUREA CYANUS BACHELOR'S BUTTONS.

PAINTED FOR JAMES VICK SEEDSMAN.

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